



AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

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NEW-YORK, FEBRUARY 14, 1835.

POSTAGE—MISSING NUMBERS.—It affords us pleasure to supply deficient numbers of the Journal; although great care is taken to put them up so that they will go safe, (and we cannot, of course, guarantee all losses in the post-office,) we cannot, we again repeat, pay postage on letters asking us to supply deficiencies.

Postage must be paid, or the numbers will not be sent.

We owe an apology to Mr. Cushman for the delay in publishing his communication on undulating railways. It should have appeared several weeks since, but it was accidentally omitted—which omission, however, will not, we trust, cause him to omit us as we have, unintentionally, his communication.

We are indebted to an unknown friend for the report of the canal commissioners in relation to the survey of the Black river canal. We shall look at and give some notice of it soon, together with some others before received.

We have also received a copy of the proceedings of a meeting of citizens held at JESSUP'S HOTEL, in this city, on the evening of the 7th inst., favorable to the Genesee and Allegany canal; a part of which will be given in our next number.

LA PORT, INDIANA, AND MICHIGAN CITY RAILROAD.—It is expected, we understand, that a charter will be granted by the Le-

gisature of Indiana, for a railroad from La Port to Michigan City—on Lake Michigan.

The following statement will, we hope, induce others, or "UNUS," to give a similar account of cost of transportation on other roads and canals.

To the Editor of the Railroad Journal:

SIR,—Your correspondent from Michigan calls for the charges of conveyance on various railroads, that he and others may judge of the comparative cost of the transportation of heavy articles, long distances on canals and railroads. I will state, in advance, that where speed is not taken into account, that it is my belief that canals are vastly preferable to railroads, for the transportation of all commodities, of whatever name or nature.

Canals cannot, however, be constructed in every place, and therefore I am decidedly in favor of railroads, judiciously located. I believe the charges on the Baltimore and Ohio Railroad will exhibit nearly the minimum prices in comparison with all other roads, and therefore is the most favorable view that ought at present to be taken.

The price for which conveyance is effected on that road, is, for all commodities transported westwardly, six cents per ton per mile; and for the same transported eastwardly, four cents per ton per mile; reckoning the ton at 2,240 lbs. For light, bulky articles, they frequently charge by the cubic foot, counting a certain number of cubic feet to a ton.

The charges on wool, feathers, or furniture, boxed, amounts to a sum much greater than 6 cents per ton per mile. They moreover frequently let their cars to individuals, to be by them laden with light articles; and after the car is so laden, it is rated at two and a half tons. In most cases, they also charge 30 cents per ton for loading and unloading.

The following exhibit may serve to show what it would cost the owner of property to transport country produce eastwardly 363 miles on a railroad, at Baltimore and Ohio Railroad charges, viz.—

At 4 cts. pr. mile.	Total.
2,240 lbs. \$14.52	—charges 30 cts. \$14.82
2,000 lbs. 12.96	" 27 " 13.23
*216 " 1.40	" 3 " 1.43
100 " 64	" 3 " .67
†60 " 38	" 2 " .41

Therefore, the charges on one bushel of wheat would be 41 cents; on one barrel of flour, \$1 43.

For passengers, the charge is three cents per mile invariably, and sometimes a charge of 12½ cents on each trunk accompanying any passenger 60 miles. As to our Erie Canal, I cannot speak so definitely as to the exact cost of transportation, and would wish therefore that some person may make a table of average prices, including toll, transportation, and charges, and communicate the same to you for insertion.

I however believe that a sum less than two thirds the amount charged on railroads would cover all expenses. It must be borne in mind, too, at the same time that the Erie Canal is paying annually a good interest, and speedily liquidating the debt contracted for its construction; while the Baltimore and Ohio Railroad Company have been scarcely able to pay a dividend of 4 per cent. per annum.†

This last difference is the most astonishing of the whole calculation. However, in favor of the railroad, it may be said that it has not yet been brought to its intended extension and termination, and that it is only in its infancy—yea, barely in embryo.

The tolls received on account of the Erie and Champlain Canals were \$1,313,155 84. The expenses of same for lock tenders, weighmasters, and assistants, repairs, costs of suits, &c. &c., \$458,526 62. Which, deducted from the amount received, will leave \$854,629 22: a sum more than equal to the interest of \$12,208,987, at 7 per cent. per annum.

Should your subscriber in Michigan want more information, and will state his wants in a series of questions, I hope myself, or some one more able, may inform him.

UNUS.

* The weight of one barrel of flour.

† The weight of one bushel of wheat.

‡ This is not, as the writer admits, a fair comparison. The Baltimore and Ohio Railroad being only one-fourth completed, whilst the canal has been for near 10 years in successful operation, besides its numerous lateral branches and the immense inland seas with which it is connected.—[Ed. R. J.]

UNDULATING RAILWAYS.—This subject seems to attract the attention of engineers in this country as well as in England. It is in our opinion a subject of importance, and we hope to see thoroughly tested.

To the Editor of the Railroad Journal, &c.

SIR,—In a former communication upon the subject of "Undulating Railways," (see Railroad Journal, vol. iii., p. 130,) were offered some strictures confined entirely to the experiments made by Mr. Badnall, upon the Liverpool and Manchester railway, intended to evince that the inferences drawn from those experiments were erroneous and absurd. In that paper, too, was hinted the probability that this projector was deceived by preconceived theoretical notions, believing that his delusion arose in drawing general conclusions from instances which were practically unsusceptible of any useful application in railway economy.

The subject is renewed with reluctance; but, professionally, as credenda of the engineer, as well as in view of a due estimation of the system in other respects, it may be proper. In so doing, it is now proposed to take a wider survey of its merits—a survey embracing the feasibility of the general principle of "undulating railways," upon the plan of Mr. Badnall; for every engineer understands that, to a greater or less extent, undula-

tions exist upon almost every railway, and are indispensable, while the present terrene distribution of hill and valley endures; that, in this way, to surmount acclivities and obstacles, that by canals would be quite infeasible, is, indeed, one of their chief characteristics—one which, in a majority of instances, insures the system of railways' pre-eminence.

Before proceeding to the merits of the question, it will be proper to premise dynamical theorems, by means of which general comparisons of results may be instituted. The two which follow, dependent upon the laws of forces, will suffice for this purpose.

$$s = \phi t + \frac{1}{2}gt^2 \mp q + \mu - m. \quad (1.)$$

$$v = \phi + gt \mp q + \mu - m. \quad (2.)$$

In which ϕ = velocity of projection; v = velocity at the end of any time; t , during which the space, s , has been passed over; q = sine of inclination of plane, whereon any body, as a car, moves; μ = any constant motive force; m = that portion of resistance from friction which is constant—the two latter quantities being each compared with gravity taken as unity; g = the velocity acquired by a body at the earth's surface, urged by the force of gravity, at the end of the first second; and the compound expression $\mp q + \mu - m$ = resultant of all constant forces which influence its motion.

Take now the profile A, B, C, D, E, &c., having an undulation B, C, D, and because, with locomotive power, grades steeper than 50 feet to the mile, or thereabouts, are inadmissible, the utmost practical limit for g may be placed at .01,* which make the common sine of inclination of the planes BC, CD. Take further the lengths of the planes equal: their altitudes will then be equal, and BD in the same horizontal plane.

In the first instance, *supposing we have no force but that of gravity*, the following effects would result to a body placed at the summit of the plane CB.

The sine of inclination being greater than the known value of friction, the body will roll down BC; but in consequence of the constant retardative influence of friction, its momentum at C will not equal that due gravitation—it will not therefore suffice to elevate it up the plane CD. Further, because friction continues its influence up CD, the distance it would otherwise ascend upon that plane will be still farther diminished.

* Thus: the gross load of a train being supposed 40 tons, and its engine 6 tons, and 3-5ths of the weight of the engine upon the drivers—then 3-5ths of 6 = 3.6 tons, or 8,064 lbs., will be the absolute weight insistent upon them. Further, taking the mean adhesion at the liberal estimate of 1-10th, there results, for the absolute value of the adhesion of the peripheries, 806 4-10 lbs. Its force of traction cannot exceed this amount.

Now 40 tons = 89,600 lbs.; consequently, the force of traction due gravity alone, upon a grade whose inclination is .01, is 896 lbs.—about 1.9 greater than the adhesion, without estimating resistance from friction. The above is then quite as great as would be admissible.

Without the application of a motive force, it is, then, impossible to attain any useful result, even if it were possible to concatenate a series of counter-planes, each consecutive pair, at least, having a common altitude. Yet this would be the *κακόν* of the "undulating railway."

In gravity, consequently, a motive force, at least equivalent to friction, must be advened before it would be even possible to elevate the body up the plane CD to D. If this be done, the performance would be infinitely in favor of the inclined profile, because, the motive force being a bare countervail to friction, no performance could result upon the level: that is, it would be thus, if precisely at the point D a declivity commenced, having a correspondent counter-plane, and so on between the termini of the road.

But this is out of the question. Such a structure is entirely visionary. Occasionally in selecting the site for a railway, a conformation of country presents itself where a pair of counter-planes could be constructed; but from the invincible nature of things, the intermedial parts must have different positions; and power, unless adapted to meet and overcome the resistances they offer, would be entirely ineffectual.

Secondly, then, it appears, no useful result can flow from the employment of a force barely equivalent to resistance from friction. Consequently, a power greater than that indicated must be employed;

and by the same reasoning, it appears that such increment of power must, at a minimum, be adequate to traverse all other portions of a line of railway.

It is frequently necessary to submit to resistances requiring a motive force of .015. Engines, whose powers do not equal or transcend this force, would have little efficiency upon any general lines of railway that are or may be constructed; the geological features of the globe offering insurmountable impediments to a materially different result.

Thus constrained to employ a motive force equal or near this value, it is highly pertinent to the inquiry to discover what modification results therefrom; the subjoined will be among the most material.

1. It has been shown that, when the motive force is barely equivalent to friction, the disparity between the performance upon the level and upon the inclinations is limitless: reciprocally, when the motive force becomes infinite, the performance upon either would be equal. It follows thence, that, between these extremes, as the motive force is enhanced, the performances approach equality. An approach, at least, towards equality of performance, ought, then, to obtain in consequence of the value of μ , necessarily, standing comparatively high.

2. The resistance or assistance from gravity being directly as q , since a deviation from the assigned limit ought, for reasons already advanced, to be made in diminution of that value, this would obviously further tend to approximate the performances at points where that limit is unattainable.

These considerations alone place the impropriety of general conclusions, from a particular case, in a light to be justly appreciated.

Still there is another consideration, of the highest import to a fair estimation of the principle, as yet untouched.

It has all along been implied that the body at B is at rest; in that case, too, it would cease to move when it should have arrived at D. But this, again, is clearly inadmissible. Alternations of rest and motion in the midst of an unobstructed way are subversive of the very system. Admitting the invincible necessity, practically, of arriving and starting at these points with considerable projectile velocity, it is evident that its effects are substantially the same with the first mentioned—that, as it increases, it favors the level. This, then, is another weighty reason for the disparity of the ratio of performances to vanish.

With these preliminaries we proceed to a comparison of instances. Suppose there were two planes disposed, as in the diagram, whose common sine was .01, and their lengths 1000 feet; and, further, suppose the motive force, μ , just sufficient to preserve the dynamical equilibrium up the planes—i. e., rating friction at $\frac{1}{15}$, or .0044, to .0144. If, moreover, the projectile velocity at the head of the planes be estimated at the moderate speed, for locomotive power, of 20 feet the second, (nearly 13 miles the hour,) we

shall have sound practical values for q , m , μ ; and by the theorems, we at once obtain the comparative performances of two similar trains upon the inclinations, and upon the level: thus—

Upon the inclinations:

Time of descent down B C is, (by theorem 1,) 32.75 seconds.

Terminal velocity is, (by theorem 2,) 41.07 feet per second.

Time of traversing both planes is, 65.50 seconds.

Which gives a mean velocity of 30.54 feet the second.

Terminal velocity, (same as projectile,) 20 feet the second.

Upon the level:

Time same as upon inclinations, 65.5 seconds.

Distance traversed in that time is, (theo. 1, making $q = 0$), 2,000 feet.

The mean velocity is then the same, 30.54 feet the second.

The terminal velocity is, (theo. 2, making $q = 0$), 29.75 ft. the second.

On comparison of the mean velocities for both systems, can the conclusion be resisted, that—even when only that portion of resistance which is constant is accounted—there is no gain by the system of counter-planes? and that, when the final velocities are considered, there is a decisive loss by that plan, seeing that they stand as 29.75 : 20, nearly $\frac{1}{2}$ in favor of the level? Were the velocities to become uniform, after the horal velocity of 26 $\frac{1}{2}$ miles the hour had been attained, the effect of the latter would be thus: at the instant of absolute time, this took place, (65 $\frac{1}{2}$ seconds after passing D,) with the engine which had run upon the inclinations, its fellow, which had run upon the level throughout, would be 487 feet in advance; and so on for every similar subsequent portion of the railroad.

Should the conditions prescribed, obtain in practice, we may assert, in general, the inferiority of the "undulating system" of railways.

Reasons for assigning .01, as about the limit for inclinations, upon that plan, have already been given. In respect to length of plane, safety alone, (to apply the convey, or abate the motive force, is bane to the principle, because acceleration, its sole basis, is thereby checked,) indicates the length assigned above, as near the practical limit wherever the two plans may come in competition: for, in consequence of acceleration, the terminal velocities would be greater than are consistent with safety. On longer planes, by reason of lateral friction, the resistance of the atmosphere, velocity becoming uniform, &c., aside from danger, the effects of acceleration disappear: hence, the case chosen will be near actual limits for all restraints, while, for that reason, it is the most favorable to the "undulating system." The cases falling within these limits, will, of course, be still more opposed to the inclined road.

In what precedes, that portion of resistance which is constant has alone been regarded. There are, however, other

sources very material to a due estimation of the system—as, the atmosphere—the retardation from centrifugal force on curvatures—and the casual infringement of the flanges of wheels against the rails. Upon long planes the latter operates; indeed, upon all inclined planes, it operates, beyond what obtains on levels, very sensibly in opposing the basis of the system—acceleration.

The exponent of the law of increase of resistance from the atmosphere, at varying velocities, being greater than unity, in all accelerated motions its mean effect will stand far higher upon the inclinations than upon the horizontal way; and therefore against inclinations. The latter remark applies as forcibly to resistances from curvatures.

We should err, then, most egregiously, if neglecting all those highly material resistances, results as favorable to inclinations as our theorems gave were anticipated in actual experiment. Of this, look where we may, there will not be found any more striking or decisive confirmation than the experiments conducted by Mr. Badnall upon the Liverpool road. They indicate an inferiority by the counter-plane system, varying from $\frac{1}{2}$ to nearly $\frac{1}{2}$. [Vide Railr. J., vol. iii. p. 130, col. 3.] Reasoning *a priori* from the known laws of mechanics, leads thus to results perfectly coincident with experiment: the larger diminution of effect in these experiments being satisfactorily accounted for in the exclusion, from our theorems, of the material resistances just recited.

All delusion, it would seem, then, in regard to the demerits of the "undulating railway," consists in the hallucination of inferring general practical results from a particular case, which can only exist in theory. It is a little singular that a gentleman, of the intellectual acumen the reassurer of the old fallacy of undulation has evinced, in many communications to the public upon the subject, should, despite his own experiments, commit so obvious and unphilosophical an oversight.

In our computations, it may be objected no allowance has been made for diminution of friction upon inclinations. True; but even in theory, the difference is entirely insignificant; for, within the limits assigned to the inclinations, the ratio of cosine to radius is almost precisely a ratio of equality—and it is in that ratio that it can alone be lessened. In a practical view, we opine, that even this immaterial quantity disappears, in consequence of the bearing surface being diminished by the larger weight being thrown upon one pair of wheels.

Perhaps exceptions may also be taken to the supposition that the planes are of equal altitudes. The obvious rejoinder is, the inclinations are inferior in the case of a common altitude, which is that most favorable to the plan; therefore, *a fortiori*, &c.

The expectation of realizing economy of power, with its pecuniary implications, and public and private benefits, appears, upon overlooking the whole grounds we have taken, to be entirely groundless.

There are, however, still other objections yet unenumerated. Besides inferiority in point of power and danger from high speeds, it would be highly destructive to machinery; all intermissive irregular motions are unfavorable to its duration, safety, and economy: especially does this remark apply to the delicate, nicely adjusted machinery of railways.

The road way would depreciate more rapidly in consequence of the larger weight being thrown upon a single pair of wheels.

Concussions between the advance and rear of a train of cars, when passing the apex of the planes, could not be obviated, even though it were rounded to the arc of a circle, or though the entire inclinations were arcs of the circle, or any other curve. Both danger and damage would thence ensue.

The system and locomotive power mutually antagonize; at the high speeds inexorably required by the plan, the elasticity of steam would be largely reduced—a circumstance adverse to acceleration, &c.

The only entity, in the shape of an advantage, the system presents, in contravention of a series of disadvantages—either of which would go far towards countervailing any benefit of this kind—it appears, consists in economy of embankment; and, possibly, at some points, of excavation at those points where the plans come in competition; there is little danger of the skillful, scientific engineer, being deluded by a purblind economy in this respect, where adequate advantages are not clearly secured.

W. M. CUSHMAN, C. E.

Albany, December 22d, 1834.

NEW-YORK AND ERIE RAILROAD.

Board of Assistant Aldermen,

February 4, 1835.

Report of the Special Committee of both Boards, in respect to the New-York and Erie Railroad; adopted, and double the usual number of the report ordered to be printed, together with one hundred of the map which accompanied it. Presented by Wm. S. Johnson.

R. FISHER, Clerk.

Resolution relative to the measures proper to be adopted by the city of New-York to promote the construction of the New-York and Erie Railroad.

Whereas, the immense augmentation which has been experienced in the extent, wealth, and prosperity of the city of New-York, since the completion of the canals of this state, signally demonstrates the value and necessity of artificial channels of commercial communication, connecting the metropolis with the populous and fertile regions of the interior.

And whereas, several works leading into the State of Ohio, from ports on the Atlantic sea-board, south of this city, are now constructing, and are rapidly advancing towards completion, under the direction of various companies, incorporated and powerfully patronised by the State of Pennsylvania, Maryland, and Virginia, seeking to divert from the city of New-York the extensive and lucrative commerce which it has heretofore enjoyed with the rich and rapidly increasing States and Territories north of the

Ohio river, and relying for success upon the greater severity of climate experienced in the more northerly latitude of the State of New-York; whereby the navigation of its canals is suspended during a large portion of the year: And whereas, it has become vitally important to the commerce of this metropolis, to obviate the difficulties and disadvantages to which it is thus subjected, which object can only be obtained by constructing additional channels of trade and intercourse, by means of railroads leading directly from the city to the western waters, and available for commercial purposes at all seasons of the year:—

And whereas, the Legislature of this State at their last session directed the route of a railroad to be surveyed under the direction of the Executive, through the southern counties of the State, from the Hudson river to Lake Erie, for the purpose of ascertaining whether the public interest would be promoted by a subscription on the part of the state to a portion of the capital stock of the New-York and Erie Railroad Company, which was incorporated in the year 1832, for the purpose of constructing such road, whereby the Commonwealth at large might participate in the burthens and benefits of that undertaking, or in what other mode the general objects sought to be accomplished by that act of incorporation, might properly be encouraged by the public authorities:—

And whereas, it is now satisfactorily ascertained, by means of that survey, that, in case the State shall co-operate and participate in the enterprise, the whole of the road in question can be completed within four years, from the 1st day of May, 1835, and a communication thereby provided, by which passengers and merchandise may be regularly transported, at all seasons of the year, in less than forty hours, from the city of New-York to the southern shore of Lake Erie, communicating also by means of the Allegany river, directly with the valley of the Ohio:—

And whereas, the inhabitants of this city are deeply interested in the prosecution and speedy accomplishment of this most important undertaking, tending, as it plainly must, to attract and secure forever to this emporium the vast and expanding trade of the most fertile, valuable, and populous portion of the continent, thereby augmenting its commerce, prosperity, and wealth, to an incalculable extent:—

Therefore, resolved, (if the Board of Aldermen concur herewith,) that it be referred to a joint committee of three members of each board, to report resolutions signifying the sense which the Common Council entertain of the necessity, importance, and value of the proposed work, and to inquire and report what measures, if any, the city may properly adopt to promote and secure its speedy execution.

The Special Committee from the Board of Aldermen and Assistant Aldermen of the city of New-York, to whom was referred the resolution of Assistant Alderman Johnson, touching the necessity, importance, and value, of the proposed railroad through the southern counties of this State, from the Hudson River to Lake Erie, respectfully beg leave hereby to report,

That, for the purpose of being more fully informed of the details of the subject thus referred to their consideration, they have summoned before them several of the directors of the New-York and Erie Railroad Company, incorporated in the year 1832, for the purpose of constructing the proposed road; and have also been attended, at their

request, by Benjamin Wright, Esq., and his assistant engineers, under whose care the route of the road has been recently surveyed. From these individuals the Committee received very full and satisfactory explanations; and, nevertheless, the Committee, being conscious of the momentous importance of the subject under examination, felt it also to be their duty to satisfy themselves, as far as was practicable, from auxiliary sources of information, of the accuracy of the details which were elicited on this interesting examination. It fortunately happened that one of the Committee,* by having been engaged for a considerable time in a work of public improvement, intersected by the route of the proposed road, had become considerably familiar with the topography, and also with the trade and resources of that portion of the country, and was thereby enabled greatly to facilitate the examinations of the Committee.

The Committee, moreover, deemed it proper that they should make no statements affecting a subject so deeply interesting to the community at large, without a full and sufficient scrutiny, and they have therefore pursued their examination with a minuteness of inquiry which has brought them into acquaintance with many interesting details, which they may deem it expedient hereafter to make the subject of a supplemental report.

In the mean time they beg leave to present to the Common Council the present summary statement of the facts which have been ascertained by their examination.

In the first place, then, they report, that after full inspection of the maps and plans returned by Judge Wright, and copious explanations from himself and his assistants, they are entirely satisfied that it is practicable to construct the proposed road, and that it will afford the means of transporting passengers, merchandise and the public mails, at all seasons of the year, in less than 48 hours from the city of New-York to Lake Erie.

The road after leaving Rockland and Orange counties, will follow successively the large vallies of the Delaware, the Susquehanna and the Allegany, and thereby obtain the easy grades of declivity naturally pursued by those streams. The surface of much of the country adjacent to the line is undulating, but the apparent difficulties which are thereby presented, are avoided by the following the water courses.

In the language of Judge Wright, the road "goes around instead of over the hills." The whole line of the route is 483 miles, capable, however, of being shortened to 460 miles; but it is not comparatively more circuitous than the canals of Pennsylvania. The ascents on much the greatest portion of the route are generally from 5 to 30 feet per mile, and do not exceed 60 feet per mile, except in five or six instances, where the line crosses the natural boundaries of the large vallies. No stationary engine or inclined plane will be necessary on any part of the road, except in one instance, about four miles from Lake Erie, and even that may be dispensed with by altering the grade for eight miles, at a moderate expense. Locomotive engines, drawing passenger cars, may be propelled over every portion of the road (except the inclined plane) with economy and advantage; and at the points where the rate of declivity exceeds sixty feet to the mile, the passage

* John Bolton, Esq., late President of the Delaware and Hudson Canal Company.

of burthen cars heavily loaded may be easily and cheaply expedited, either by auxiliary locomotive engines, or an addition of animal power. It is quite certain that passengers may be carried over the road with great celerity and profit, and from the testimony taken before the Committee, and the personal information of one or more of its members, they are entirely satisfied that the road will also serve to transport to tide water the lumber, provisions, live stock, fuel, and agricultural products of the region of country adjacent to the route and its contemplated branches, and carry back merchandize in return, more cheaply and advantageously than can be effected by any other channel of communication.

The road will be intersected by several lateral branches and canals, which will greatly increase its revenue and its importance. In the western part of Orange county, it intersects the Delaware and Hudson Canal: in Broome county, the Chenango Canal: in Tioga county, the Chemung Canal: in Delaware county, it will be connected with a branch leading up to Delhi: in Otsego county, by a very important and valuable branch leading up the valley of the Unadilla to Utica, for which a charter is obtained and the stock already subscribed; a branch will lead through the valley of the Onondaga River, in the county of Cortland, to the Salt Works at Syracuse: at Owego, the railroad, now finished to Ithaca, will immediately connect the main line with the fertile country adjacent to the Cayuga and Seneca Lakes: by the line of steamboat navigation now in preparation on the Susquehanna at Owego, it will be united to the valley of Wyoming and the coal regions of Pennsylvania: the contemplated railroad from Rochester to Danaville, if extended a few miles, will intersect the main line in Steuben county: in Allegany county, it will intersect the contemplated route of the Rochester and Olean canal: and it will become connected in Cataraugus county with the Allegany River, and thereby open a direct communication between the city of New-York and the large and populous communities and cities in the valley of the Ohio. The map of the proposed route annexed to this report, fully exhibits these several localities, and is well worthy the attention of the Common Council.

2. The Committee are of opinion that this work will afford immense public benefits to the inhabitants of this metropolis.

The rapid, constant, and regular communication it will insure at all seasons of the year, with the extensive and fertile grazing districts in the counties of Orange and Delaware, and the valley of the Susquehanna, will cheapen the price of subsistence, by affording abundant and uninterrupted supplies of provisions for the public markets; the excellent and valuable timber furnished by the counties of Steuben, Allegany, and Cataraugus, by reducing the cost of building, will accelerate the growth of the city, and at the same time facilitate the operations of ship building; the rapid and regular passage it will secure to the public mails, will insure the speedy transmission of commercial intelligence; it will provide for the public defence, by affording the means of military communication with unparalleled speed between the Atlantic and Western frontiers; while the comfort and health of our citizens will be promoted by obtaining cheap and frequent access to the healthful regions of the interior.

3. The speedy completion of the work has now become an object of transcendent importance to the merchants, traders, and

land owners of this city, in order to preserve and extend its great and lucrative trade with the West.

The important and alarming truth can no longer escape the attention of our municipal authorities, that the intercourse between this city and the great West, to which it owes so large a share of its present prosperity and power, is totally suspended during five months of the year. Availing themselves of that circumstance, the public spirited citizens of Pennsylvania have constructed, and have now recently completed, a line of canals and railroads from Philadelphia to Pittsburgh, which are available for the purposes of trade and intercourse during at least two months of the year, in which the navigation of the New-York canals is suspended by the greater severity of their more northern latitude. The Erie canal is not usually navigable until the 20th of April, and rarely remains open after the 20th of November. The canals of Pennsylvania, favored by a more southern climate, are generally navigable about the 10th of March, and remain so until the 25th of December. The merchants of Philadelphia are thereby enabled to monopolize the western trade during portions of the spring and autumn peculiarly valuable for commercial purposes. Even after the navigation is opened on the Erie canal, the intercourse between New-York and the West is obstructed for a considerable time by the ice accumulated during the months of March and April, in the harbor of Buffalo, while the navigation of the Ohio river being open at Pittsburgh during that important season of the year, the produce of the West finds its way to Philadelphia, and its proceeds are invested in merchandize, and transported into the remotest portions of the interior, before vessels are able to navigate the eastern end of Lake Erie. The intelligent and enterprising merchants of Philadelphia, supported by the spirited efforts of their Board of Trade, are striving to follow up this advantage, by promoting, with great zeal, the construction of lateral canals and railroads by the state of Ohio, and by private companies, extending northwesterly from the Pennsylvania line to the Ohio Canal, for the purpose of effecting a communication between Pittsburgh and the harbor of Cleveland, on Lake Erie; and that too for the avowed object of diverting from the city of New-York the lucrative commerce which it would otherwise enjoy with the northern parts of Ohio, Indiana, Illinois, and Michigan.

There is no mode of successful competition with these efforts of our public-spirited rivals, except by opening a winter communication between this city and the harbors on the wider part of Lake Erie.

The proposed road will accomplish that object by affording the means of transmitting merchandize at all seasons of the year within forty-eight hours from the warehouses of New-York to the harbors of Dunkirk, Portland, or Erie, while its connexion with the cheap descending navigation of the Alleghany River, (which is generally available in the latter part of February, and early in March, and is capable, with small expense, of being rendered navigable for steamboats at all seasons of the year,) will enable the merchants of our city to furnish the cities of Pittsburgh, Cincinnati, and the other trading towns in the valley of the Ohio, with their spring supplies, before the opening of navigation on the Pennsylvania Canal. The speedy completion of this road will moreover encourage and hasten its speedy continuation by great

western and southern branches, leading from Lake Erie to various points on the western and south-western waters, whereby passengers, merchandize, and the mail, may be transmitted in six days from New-York to St. Louis: and thus this great central channel of intercourse, lying wholly within the limits of our own state, and subject to its sole jurisdiction, will become the main trunk of a connected system, or series of internal communications, extending from the port of New-York, throughout the populous regions in the vast and fertile valley of the Mississippi.

The statistical particulars of these great lines of western communication, and the important influence they will exert in directing the trade of those vast inland regions into Lake Erie, and thence to the city of New-York, will be found in an interesting letter furnished to the committee by one of the directors of the company, which is annexed to this report, and is recommended to the attention of the Common Council as a document of much importance.

4. The preservation of the trade of these great inland districts, by connecting them closely with this city by means of cheap and rapid channels of communication, has become an object of the deepest solicitude to the landholders of New-York, and every person interested in its permanent prosperity.

The past growth, and in truth the very existence of this metropolis, are wholly owing to the facilities of communication it possesses with the agricultural population of the interior. The Erie Canal opened a channel of intercourse during seven months of the year, between the port of New-York and inland districts containing little more than a million of inhabitants, and yet within ten years from its completion, the assessed value of the landed property of the city was augmented from 52 to 114 millions of dollars. The completion of the proposed road will bring into constant connexion with the city of New-York an increased amount of territory, already containing three, and destined, within six years, to number more than six millions of inhabitants; while the impulse imparted to the agricultural prosperity of those inland communities, by the facilities afforded to them for cheap and expeditious communication with their trading emporium, will augment to a corresponding extent their capabilities of pursuing a profitable commerce with the sea-board.

It has been frequently, and by no means extravagantly, stated, that the construction of the Erie Canal, by diminishing the time and labor expended in transportation, has saved annually to the citizens of this state not less than \$5,000,000, and added at least \$150,000,000, to their aggregate wealth. This immense and rapid augmentation of value will afford a criterion, although imperfect, by which to estimate some portion of the pecuniary benefits to be derived by the public, from the opening of a communication not less cheap, more regular, and far more expeditious than the canal between this metropolis and a district of fertile territory, embracing an area more than eight times as large as the state of New-York, west of Utica. To calculate with any accuracy the value of the vast and illimitable trade which, within twenty years, will be concentrated upon the waters of Lake Erie, destined before the present generation shall pass away, to number more than a thousand vessels, and to bear on its surface the wealth of at least twenty millions of the American people, or to com-

pute the prodigious rise in value which the landed property on the Island of New-York will experience, when the immense and expanding commerce of these great inland communities shall be concentrated within its limits, will not be attempted; but it will be confidently claimed that the increase in the value of the real estate in this city within the first ten years after completing the proposed road, will repay more than tenfold the whole cost of its construction, and that the augmentation in the population and wealth of the immense and fertile regions which will be brought by its completion within four days' travel of the sea-board, will defy all attempts at sober calculation.

5. In what mode, then, can this great enterprise, promising public advantages thus enormous, be most effectually and speedily accomplished?

In the year 1832, the standing committee on internal improvements in the Legislature of this state, after full examination of this and other projects of inland communication, reported that it would not be politic for the state, as such, to construct railroads; and for the obvious reason, that the owners of the road must manage the transportation, and the state could not become common carriers. But the committee recommended the incorporation of companies, whenever individuals should see fit to risk their property in constructing railroads, reserving, however, the right, which is reserved in all other acts of incorporation, to repeal or modify the charters. The committee also recommended that the state should subscribe to portions of stock in this and all the other great leading routes, whereby the public at large might participate, to a certain extent, in their pecuniary profits, (if any,) and at the same time secure the economical management resulting from the vigilant attention of individual proprietors.

The annual message of the Governor to the Legislature at the opening of the session in that year, after stating that the construction of railroads in various parts of the state would "become eminently promotive of the public good," but that "many generations must pass away before the numerous improvements worthy of the state could be undertaken by the public means alone," recommended that companies of individual proprietors be incorporated with power to construct them, reserving, however, to the Legislature, the right secured in all the recent acts of incorporation, to take possession of the roads as public property, on equitable terms.

The Legislature, accordingly, in the year 1832, chartered a company for the purpose of making the proposed road, (subject to the reservations recommended by the Governor,) with leave to issue capital stock to the amount of \$10,000,000, requiring them to expend \$200,000 before April, 1837; to finish one quarter of the work before April, 1842; one half before April, 1847; and the whole before April, 1852; and authorising them to receive donations of lands to aid in the construction of the work. By an amendment, obtained in 1833, the company were empowered to organize themselves, on receiving subscriptions of stock for one million of dollars. That amount was duly subscribed, and is now holden principally by merchants, land-holders, and other inhabitants of this city, deeply interested in its permanent prosperity, and anxious to complete the proposed work with all practicable despatch.

In order to ascertain how far the public interest would be promoted by a subscription to the stock on the part of the State,

the Legislature in May, 1824, authorized the route to be surveyed at the public expense. In the mean time the Directors of the Company have been actively employed in making the inquiries and investigations necessary to the prosecution of their object, adopting measures calculated to secure the confidence of capitalists, and obtaining donations towards their work from large proprietors on the route; and they have met with such success and such encouraging assurances, that they are confident of being enabled to commence the road during the ensuing season, and they believe that in case the legislature should authorize a subscription by the State, for a portion of the stock, or a loan of its credit to the company, they can complete a single track of their road over the whole route within five years.

The expense of the whole work, as estimated by Judge Wright, including the graduation for a double track throughout on solid earth embankments, and laying down a single track ready for use from the Hudson River to Lake Erie, will not exceed \$4,762,000. The graduation of more than one half of the line does not exceed \$4,000 per mile. The whole route is embraced in six large divisions, to wit:

The *First, or Hudson River Division*, extending 73½ miles from a point on the Hudson River, near the southern extremity of Rockland county, (distant 24 miles north of the City Hall of New-York,) to a point in the Deer-park Gap of the Shawangunk mountain near the west line of Orange County, dividing the waters of the Hudson from those of the Delaware:

The *Second, or Delaware Division*, extending 115 miles from the point last mentioned, through the valley of the Delaware and its tributaries, to a point near Bettsburgh, in Chenango County, dividing the waters of the Delaware from those of the Susquehanna:

The *Third, or Susquehanna Division*, extending from the point last mentioned 163½ miles along the valley of the Susquehanna and its branches, to a point near the west line of Steuben county, dividing the waters of the Susquehanna from those of the Genesee:

The *Fourth, or Genesee Division*, extending from the point last mentioned 37 miles, across the valley of the Genesee, to a point near the east line of Cattaraugus county, dividing the waters of the Genesee from those of the Alleghany:

The *Fifth, or Alleghany Division*, extending from the point last mentioned, 83 miles along the valley of the Alleghany and its tributaries, (situated at the northern extremity of the great valley of the Ohio,) to the head of the inclined plane, near Lake Erie:

The *Sixth, or Lake Erie Division*, comprehending the short and rapid descent to the shore of the lake, including the inclined plane and two branches of the road, one to the harbor of Dunkirk, 8½ miles, and one to Portland, 9 miles.

6. The execution of this most valuable and necessary work being thus shown to be free from physical difficulties, and capable of being completed at a moderate expense, the question then arises, of much importance to the public, and one which the Committee deemed it their duty fully to examine, whether the Company now incorporated possess sufficient means and resources to complete the road with the energy and despatch which the public interest requires. The Committee, in prosecuting this inquiry, have personally examined the officers, directors, and books of the

Company, and from that personal inspection they have become entirely satisfied, that the stock of the company is held by individuals greatly interested in the permanent prosperity of the city, deeply conscious of the importance of the proposed road in advancing the general, as well as their individual prosperity, and fully determined to spare no effort to insure its speedy completion. The concerns of the Company are now managed by 17 directors, 14 of whom, to wit: James G. King, the President, Eleazer Lord, the Vice President, Peter G. Stuyvesant, John G. Coster, John Rathbone, jun., Gould Hoyt, Samuel B. Ruggles, J. Green Pearson, Elihu Townsend, Peter Harmony, Stephen Whitney, James Boorman, John Duer, and Michael Burnham, reside in this city, and are well known to their fellow citizens; and the remaining three, to wit: Jeremiah Pierson, George D. Wickham, and Joshua Whitney, reside in the counties along the route, and equally command the confidence of the inhabitants of that part of the State.

The committee have also satisfied themselves, by personal inspection, that the first instalment required on the million of dollars, heretofore subscribed to the stock, has been regularly paid in cash, and that it is now duly deposited upon interest, with the New-York Life Insurance and Trust Company, subject to the joint order of the President and Vice-President of the New-York and Erie Railroad Company.

It was not necessary, nor would it have been at all prudent or expedient, for the Directors to have proceeded in the actual construction of the road, until the route should have been surveyed; and it was also deemed highly desirable that the survey should be finished, which had been ordered by the State, in order more perfectly to secure and confirm the confidence of the large capitalists, whose co-operation was absolutely necessary in the prosecution of so great an enterprise.

The very favorable results ascertained by Judge Wright, and by his report to the Secretary of State, presented about the first of this month, a copy of which is hereunto subjoined, have entirely confirmed the belief previously entertained, that the work is perfectly feasible; and that it will be profitable not only to the community, but to the stockholders, who may embark their funds in its construction. The committee are assured that the Directors intend forthwith to open books for private subscriptions, for the additional amount of two millions, and that they entertain the most perfect confidence, that by means of the subscriptions already obtained, and the assurances of valuable donations of lands along the route, tendered to them by the inhabitants (all but unanimously) along the whole route, and of their zealous and hearty co-operation, recently and repeatedly, and at all times expressed in their town and county conventions, the Company will be enabled to commence the actual execution of the work during the ensuing season, and nearly two years before the time allowed for that purpose in the charter; and that in case the State shall loan its credit, or subscribe for the stock to an amount not exceeding one third of the cost of the road, the Company can complete the whole from the Hudson River to Lake Erie, within five years. And the committee are further satisfied, that even if the State shall decline to extend any aid to the Company, and they shall be left to their own unaided resources, they can within two years complete the second or Delaware division of

the road, and thereby divert to this city, through the Delaware and Hudson Canal, a large portion of the exports now passing out of this State, down the Susquehanna River:—and it is moreover confidently believed, that the productiveness of that division, by demonstrating the value of the whole work, will sustain the credit of the stock, and enable the Directors to extend the road without delay to Lake Erie.

The inquiry then arises as to the mode in which it will be proper and expedient for the Common Council to aid in the accomplishment of a work affecting so deeply the prosperity of the city and its inhabitants.

Whether the city, in its corporate capacity, possesses the legal right to make donations of land or money, in aid of this work, or to subscribe its funds to any portion of the stock of the Company, is not necessary now to inquire. It may be well, however, to state, that the municipal authorities of the city of Baltimore deemed it their duty to assist in the construction of the railroad from that city to the Ohio River, by a subscription of \$500,000 to the stock of the Company engaged in its construction. The city of Richmond, with a population of less than 20,000 inhabitants, has recently subscribed \$200,000 to the stock of the Company incorporated for the purpose of opening a communication by canals and railroads, between the Atlantic coast of Virginia and the river Ohio. The Union Canal Company of Pennsylvania has recently been aided by a loan of the credit of that State, authorized by its Legislature: and the Pottsville and Danville Railroad Company, incorporated for the purpose of directing to the city of Philadelphia the trade of the Susquehanna Valley, and avowedly claiming that they will be able through that channel to divert from the city of New-York a large part of the trade of the southern counties of this State, has recently obtained from the State of Pennsylvania a loan of its credit for \$300,000.

In the judgment of the committee, the aid to which the New-York and Erie Railroad Company are justly entitled from the public, ought to be rendered directly by the State. They therefore report, that it will not be expedient for the Common Council at present to aid in the enterprise, except by uniting strongly in the petitions to the Legislature, praying the State to co-operate in the efforts of the Company, and thereby signifying the unanimous sense which the municipal authorities of this city entertain of the public importance of the work.

The city, possessing one third of the taxable property of the State, is consequently interested to that extent in the pecuniary consequences of any subscription by the State at large; and will accordingly gain or lose to that extent, by the profit or loss to result from the investment in that mode of the public funds. The committee, however, do not believe that the State can sustain any pecuniary loss by such subscription, inasmuch as they deem it almost positively certain that the road, when completed, will produce an annual revenue fully equal to the interest on its cost.

The road will cost, when fully completed, much less than the Erie Canal, and in many respects will be far more useful to the public; and consequently will be capable of yielding a much greater revenue.

The fact that it will be open and available, and earning income, during the long interval of five months, in which the Erie Canal is closed; that it will afford facili-

ties for the expeditious transportation of passengers and the public mails, not possessed by the canals; that it will be connected by its lateral branches, and the numerous rivers and canals which it will intersect, with the most fertile and populous parts of the State, and with an extensive district in Pennsylvania and in New-York, abounding in natural resources, and capable of rapid advancement in population, prosperity, and wealth; and, above all, the fact that it will open the most direct and central avenue of trade and intercourse between the Atlantic seaboard and the immense and expanding communities adjacent to the great lakes and waters, and internal communications of the West, will assuredly justify the most confident expectation that the business of the road will yield an income fully equivalent to the interest on its cost, and the risk assumed in its construction; and that the public spirited individuals who may subscribe to the stock (including the State to the full extent to which it may participate) will advance their pecuniary interest, while at the same time they will promote to an incalculable extent the public good.

The Committee therefore beg leave to submit for adoption the following Resolutions:

Resolved, That the speedy construction of the New-York and Erie Railroad has become an object deeply interesting and important to the merchants, mechanics, traders, landholders, and all other inhabitants of this city—and that the efforts of the company who have been incorporated with the power to construct it, merit and ought to receive the zealous support and co-operation of the public authorities.

Resolved, That from the minute and personal examination of the concerns of that Company made by the Committee of the Boards of Aldermen and Assistant Aldermen, and the facts herein above set forth of the situation and prospects of the Company, there can be no reasonable doubt of their inclination and ability to complete the Road with all practicable dispatch, and that the whole can be completed within five years, in case the company shall be aided to a moderate extent by the patronage and co-operation of the state.

Resolved, That it is proper and expedient for the Common Council as representatives of the City and County of New-York, containing one-third of the aggregate amount of taxable property within this state, to petition the Legislature to invest a portion of the public funds in the stock of the Company, or else to facilitate its objects by a loan of the credit of the state, and therefore—

Resolved, That his Honor the Mayor be requested to transmit to the Legislature the petition of the City of New-York under its corporate seal, setting forth the necessity and advantages of this great work and soliciting the Legislature to aid in its speedy completion.

Resolved, That the public authorities of our sister City of Brooklyn, constituting a large and important portion of our commercial emporium, be, and they hereby are respectfully invited to co-operate with the Common Council of this city in such measures as may become necessary to promote the speedy accomplishment of the proposed road.

Resolved, That it be recommended to the citizens at large, assembled either in general meetings, or in their respective wards, to adopt energetic measures to ex-

press to the Legislature their sense of the transcendent importance of the proposed road, in preserving and extending their internal commerce with the west, and thereby augmenting the extent, population and prosperity of this metropolis.

Resolved, That in view of the importance of the proposed route in affording unrivalled facilities for the rapid transmission of commercial intelligence, it will be proper to petition to Congress, or the Post Master General of the United States to adopt such measures as may be necessary to secure the permanent use of the proposed road, for the carriage of the public mails, and that his Honor the Mayor be requested to transmit to Washington such memorial and petition in that respect as may be appropriate.

Resolved, That the members of Assembly, and of Congress from this city at Albany and at Washington, be, and they hereby are respectfully requested to use their best efforts in such mode as to them shall seem proper, to promote the success of the petitions thus to be presented by this city—and that they be furnished by the Mayor with copies of this report and the accompanying resolutions.

WM. SAM'L JOHNSON,
SILAS S. STILWELL,
ISAAC L. VARIAN,
JOHN BOLTON,
J. J. BOYD,
JOHN DE LAMATER.

New-York, Feb. 4th, 1835.

ON THE COMPARATIVE VALUE OF FUEL.

(Continued from page 41.)

These kindling balls may be made so inflammable as to take fire in an instant, and with the smallest spark, by dipping them in a solution of nitre, and then drying them again; and they would neither be expensive nor liable to spoil by long keeping. Perhaps a quantity of pure charcoal, reduced to very fine powder, and mixed with the solution of nitre in which they are dipped, would render them still more inflammable.

[The foregoing meagre account of the relative value of several varieties of fuel, as determined by the heat produced in combustion, comprises about all the information which the labors of Crawford, Lavoisier, Rumford, Watt, Dalton, Clement, Desormes, and other philosophers, have shed upon the subject previous to the publication of Mr. Bull of Philadelphia, entitled "Experiments to Determine the Comparative Value of the Principal Varieties of Fuel used in the United States and in Europe," read before the American Philosophical Society of Philadelphia, in April, 1826. This is by far the most extended, systematic, and successful, effort yet made in this interesting field of experimental inquiry. I am indebted to the politeness of Mr. Bull for permission to transcribe the tabular results of his experiments, and such other portions of his interesting paper as more immediately comports with the practical character and design of this work; but would earnestly recommend the perusal of the whole paper to every scientific manufacturer, or artisan, whose processes involve any considerable consumption of fuel, as well as to enlightened readers of every class; for no subject is more generally interesting

in our cold climate than the most economical means of producing artificial heat.

The general principle on which Mr. Bull's experiments were conducted, for determining the comparative heat evolved in the combustion of the different varieties of fuel operated on, was to burn them in a close room, and note the time that the combustion of a given weight of each would sustain the air of the room at a temperature of 10° above the surrounding medium. To obviate the influence which the ordinary atmospheric changes of temperature and the winds would produce on the results, by furnishing a surrounding "refrigerating medium of inconstant power," the room in which the experiments were performed was surrounded by double walls, and the intermediate space sustained by artificial heat during the experiments, at a uniform temperature, and somewhat higher than the greatest natural temperature of the external atmosphere. The actual temperature of the inner and the outer rooms, during the experiment, was determined by common mercurial thermometers suspended in each, and the difference of temperature by Leslie's differential thermometer, the horizontal part of which traversed the inner wall, or partition, leaving a bulb and upright stem on each side. The combustion was effected in a small upright cylindrical stove furnished with forty-two feet of sheet iron pipe of two inches diameter, having in it several convolutions before it left the room. So completely was the heat generated in the process of combustion dissipated by the pipe, and emitted into the room, that a thermometer, the bulb of which was inserted in the pipe just before it entered the chimney, indicated the same temperature as the one which hung in the room. As the conducting power of air, in relation to caloric, is influenced by its hygrometric state, care was taken to preserve it in a uniform condition in this respect. All the varieties of fuel operated on were dried previous to combustion, at a temperature of 250°, Fahrenheit. Their solid contents were determined in the usual method for irregular bodies, by the volume of water which a given volume by the usual admeasurement displaces, and the specific gravities by the hydrostatic balance. In the latter case, porous substances, which expand by the absorption of water, as the wood, were previously covered with a varnish having exactly the same specific gravity as water; in short, no precaution seems to have been omitted by this laborious and able experimenter, to guard against every source of error, both in the construction of his apparatus, and in the general conduct of his inquiries. The annexed table exhibits the results of his experiments on sixty-six varieties of fuel.

On the first inspection of the annexed table I was surprised, as I presume others have been, at the general aspect of the 10th column in relation to the wood. The difference in the heat produced by the combustion of equal weights of dry woods is much less than I had apprehended, and such as to induce a momentary suspicion

Woods and Coals.		Specific gravities of dry wood.	Avoid. lbs. of dry wood in 1 cord.	Product of charcoal from 100 parts dry wood, by weight.	Specific gravities of dry coal.	Pounds of dry coal in one bushel.	Lbs. charcoal from 1 cord of dry wood.	Bushels of charcoal from 1 cd. dry wood.	Time 10° Heat were maintained by the combustion of 1 lb. of each article.	Value of specified quantity of each article, compared with shell-bark hickory?
Common Names.	Botanical Names.									
White Ash.....	Fraxinus americana.....	.772	3450	25.74	.547	28.78	888	31	6 40	77
Apple Tree.....	Pyrus malus.....	.697	3115	25	.445	23.41	779	33	6 40	70
White Beech.....	Fagus sylvestris.....	.724	3236	19.62	.518	27.26	635	23	6	65
Black Birch.....	Betula lenta.....	.697	3115	19.40	.428	22.52	604	27	6	63
White Birch.....	Betula populifolia.....	.530	2369	19	.364	19.15	450	24	6	48
Butter-nut.....	Juglans cathartica.....	.567	2534	20.79	.237	12.47	527	42	6	51
Red Cedar.....	Juniperus virginiana.....	.545	2525	24.72	.238	12.32	624	50	6 40	56
American Chestnut.....	Castanea vesca.....	.522	2333	25.29	.379	19.94	590	30	6 40	52
Wild Cherry.....	Cerasus virginiana.....	.597	2668	21.70	.411	21.63	579	27	6 10	55
Dog Wood.....	Cornus florida.....	.815	3643	21	.550	28.94	765	26	6 10	75
White Elm.....	Ulmus americana.....	.580	2592	24.85	.357	18.79	644	34	6 40	58
Sour Gum.....	Nyssa sylvatica.....	.703	3142	22.16	.400	21.05	696	33	6 20	67
Sweet Gum.....	Liquidambar styraci flua.....	.634	2834	49.69	.413	21.73	558	26	6	57
Shell-bark Hickory.....	Juglans squamosa.....	1.000	4469	26.32	.625	32.89	1172	36	6 40	100
Pig-nut Hickory.....	Juglans porcina.....	.949	4241	25.22	.637	33.52	1070	32	6 40	95
Red-heart Hickory.....	Juglans laciniata ?.....	.829	3705	22.90	.509	26.78	848	32	6 30	81
Witch Hazel.....	Hamamelis virginica.....	.784	3505	21.40	.368	19.36	750	39	6 10	72
American Holly.....	Ilex opaca.....	.602	2691	22.77	.374	19.68	613	31	6 20	57
American Hornbeam.....	Carpinus americana.....	.720	3218	19	.455	23.94	611	25	6	65
Mountain Laurel.....	Kalmia latifolia.....	.663	2963	24.02	.457	24.05	712	30	6 40	66
Hard Maple.....	Acer saccharinum.....	.644	2878	21.43	.431	22.68	617	27	6 10	60
Soft Maple.....	Acer rubrum.....	.597	2668	20.64	.370	19.47	551	28	6	54
Large Magnolia.....	Magnolia grandiflora.....	.605	2704	21.59	.406	21.36	584	27	6 10	56
Chestnut White Oak.....	Quercus prinus palustris.....	.885	3955	22.76	.481	25.31	900	36	6 30	86
White Oak.....	Quercus alba.....	.855	3821	21.62	.401	21.10	826	39	6 20	81
Shell-bark Wh. Oak.....	Quercus obtusiloba ?.....	.775	3464	21.50	.437	22.99	745	32	6 20	74
Barren Scrub Oak.....	Quercus catesbeii.....	.747	3339	23.17	.392	20.63	774	38	6 30	73
Pin Oak.....	Quercus palustris.....	.747	3339	22.22	.436	22.94	742	32	6 20	71
Scrub Black Oak.....	Quercus banisteri.....	.728	3254	23.80	.387	20.36	774	38	6 30	71
Red Oak.....	Quercus rubra.....	.728	3254	22.43	.400	21.05	630	30	6 20	69
Barren Oak.....	Quercus ferruginea.....	.694	3102	22.37	.447	23.52	694	29	6 20	66
Rock Chestnut Oak.....	Quercus prinus monticola.....	.678	3030	20.86	.436	22.94	632	28	6	61
Yellow Oak.....	Quercus prinus acuminata.....	.653	2919	21.60	.295	15.52	631	41	6 10	60
Spanish Oak.....	Quercus falcata.....	.584	2449	22.95	.362	19.05	562	30	6 20	52
Persimmon.....	Diospyros virginiana.....	.711	3178	23.44	.469	24.68	745	30	6 30	69
Yellow Pine (soft).....	Pinus mitis.....	.551	2463	23.75	.333	17.52	585	33	6 30	54
Jersey Pine.....	Pinus inops.....	.478	2137	24.88	.385	20.32	532	26	6 40	48
Pitch Pine.....	Pinus rigida.....	.426	1904	26.76	.298	15.68	510	33	6 40	43
White Pine.....	Pinus strobus.....	.418	1868	24.35	.293	15.42	455	30	6 40	42
Yellow Poplar.....	Liriodendron tulipifera.....	.563	2516	21.81	.383	20.15	549	27	6 10	52
Lombardy Poplar.....	Populus dilatata.....	.397	1774	25	.245	12.89	444	34	6 40	40
Sassafras.....	Laurus sassafras.....	.618	2762	22.58	.427	22.47	624	28	6 30	59
Wild Service.....	Aronia arborea.....	.887	3964	22.62	.594	31.26	897	29	6 20	84
Sycamore.....	Acer pseudo-platanus.....	.535	2391	23.60	.374	19.68	564	29	6 30	52
Black Walnut.....	Juglans nigra.....	.681	3044	22.56	.418	22	667	31	6 20	65
Swamp Whortleberry.....	Vaccinium corymbosum.....	.752	3361	23.30	.505	26.57	783	29	6 30	73
Lehigh Coal.....					1.494	78.61			13 10	99
Lackawanna Coal.....					1.400	73.67			13 10	99
Rhode Island Coal.....					1.438	75.67			9 30	71
Schuylkill Coal.....					1.453	76.46			13 40	103
Susquehanna Coal.....					1.373	72.25			13 10	99
Swatara Coal.....					1.459	76.77			11 20	85
Worcester Coal.....					2.104	110.71			7 50	59
Cannel Coal.....					1.240	65.25			10 30	230
Liverpool Coal.....					1.331	70.04			9 10	215
Newcastle Coal.....					1.204	63.35			9 20	198
Scotch Coal.....					1.140	59.99			9 30	191
Karthauss Coal.....					1.263	66.46			9 20	208
Richmond Coal.....					1.246	65.56			9 20	205
Stony Creek Coal.....					1.396	73.46			9 50	243
Hickory Charcoal.....					.625	32.89			15	166
Maple Charcoal.....					.431	22.68			15	114
Oak Charcoal.....					.401	21.10			15	106
Pine Charcoal.....					.285	15			15	75
Coke.....					.557	29.31			12 50	126
Composition of two parts Lehigh Coal, one Charcoal, and one Clay, by weight.....									13 20	

of the general accuracy of the results. The extreme times in which given weights of forty-six varieties of dry woods sustained a temperature, in the inner room, of 10° above the surrounding medium, are only as 9 to 10. If we turn to the 5th column, we observe a remarkable coincidence between the weight of charcoal, which each variety of wood yields, and the heat produced by combustion. This correspondence is noticed by Mr. Bull. It is not exact, but sufficiently so to justify the inference, that the small difference in the actual value of fuel, as determined by the heat emitted on combustion, is mainly attributable to variations in the quantity of carbon they contain. As the results in these two columns were

obtained by actual experiment, and by processes entirely dissimilar, the coincidence noticed affords a strong confirmation of the general correctness of both.

The eight first columns of figures, in the above general table, contain the results of actual experiments, for the details of which I must refer the reader to Mr. Bull's work. The last column is obtained by calculation. Mr. Bull found that shell-bark hickory has the greatest specific gravity of all the varieties of wood experimented on, (as indicated in the table;) and, as an equal weight of it was observed to maintain a given temperature in the room as long a time as any other, it follows that a cord of this wood would yield the greatest amount of heat in com-

bustion: assuming, therefore, the specific gravity of shell-bark hickory to be 1.000, and its value as 100, the value of the other woods must be in the compound ratio of their respective specific gravities, and the time which a given weight was found to sustain the required temperature, and is given in decimal expressions of this last number. On this subject Mr. Bull observes, "that although shell-bark hickory has been taken, for convenience, as the standard to construct the column of comparative values, the economist should take the cheapest article of fuel in the market, as his standard of comparison."

If we assume the average quantity of charcoal yielded by the dry woods to be 20 per cent. by weight, and the average time that a pound of dry wood sustained a temperature of 10° above the surrounding medium, in Mr. Bull's experiments, to be six hours (both of which terms are below the truth, but which sustain to each other about the ratio which we observe between the 5th and 10th columns in his table,) it results that just 50 per cent. of the heat emitted in the combustion of dry wood is to be attributed to the combustion of the carbon which it contains: for one pound of charcoal sustained the temperature of the room, at the required point, just two and a half times as long as the assumed average time that a pound of wood would do, which yields 20 per cent. of charcoal, and $.20 \times 2.5 = .500$.

The following remarks of Mr. Bull are full of interest to the economist of fuel. "From experiments made to ascertain the weight of moisture absorbed by the different woods, which had previously been made perfectly dry, and afterwards exposed in a room in which no fire was made during a period of twelve months, the average absorption by weight, for this period, was found to be 10 per cent. in forty-six different woods, and 8 per cent. in the driest states of the atmosphere; and an unexpected coincidence was found to exist in the weight absorbed by forty-six pieces of charcoal, made from the same kinds of wood, and similarly exposed, the latter being also 8 per cent."

"The quantity of moisture absorbed by the woods individually was not found to diminish with their increase in density; whilst it was found that the green woods in drying uniformly lost less in weight in proportion to their greater density. Hickory wood, taken green, and made absolutely dry, experienced a diminution, in its weight, of 37½ per cent., white oak 41 per cent., and soft maple 48 per cent. A cord of the latter will, therefore, weigh nearly twice as much when green as when dry."

"If we assume the mean quantity of moisture in the woods, when green, as 42 per cent., the great disadvantage of attempting to burn wood in this state must be obvious; as in every 100 pounds of this compound of wood and water, 42 pounds of aqueous matter must be expelled from the wood, and as the capacity of water for absorbing heat is nearly as 4 to 1 when compared with air, and probably

greater during its conversion into vapor, which must be effected before it can escape, the loss of heat must consequently be very great.

"The necessity of speaking thus theoretically, upon this point, is regretted; but it will be apparent that this question of loss cannot be solved by my apparatus, as the vapor would be condensed in the pipe of a stove, and the heat would thereby be imparted to the room, which, under ordinary circumstances, escapes into the chimney."

If we adopt the statement of Mr. Tredgold, that 8.40 pounds of Newcastle coal will convert one cubic foot, or 62½ pounds, of water, into steam, under common pressure of the atmosphere, which is probably correct, Mr. Bull's table furnishes the remaining necessary data for a more accurate determination of the loss sustained in burning green wood. Take, for example, 100 pounds of green white oak, which Mr. Bull found to contain 41 pounds of moisture: according to Mr. Tredgold, 41 pounds of water require 5.51 pounds of Newcastle coal for conversion into vapor. Now we have the relative values of oak wood and Newcastle coal, as it regards their power of producing heat, in the 10th column of Mr. Bull's table: 1 pound of white oak maintained 10° of heat in the room six hours and twenty minutes, and one pound of Newcastle coal nine hours and twenty minutes. We have then this proportion, as 380:560::5.51:8.12 pounds of dry oak, consumed in converting 41 pounds of water into steam; or, in other words, 13½ per cent. of the combustible matter of green oak is employed in boiling away its own water, and, in all ordinary cases, is a dead loss. It is true that arrangements might be made by a very protracted iron pipe, as in the stove used by Mr. Bull in his experiments, and other contrivances, for condensing the steam thus formed from green wood, and recovering both the latent and the sensible heat of the steam; but such an apparatus would be attended with too many inconveniences to be adopted in our dwelling houses, and would be perfectly impracticable in large fires in the arts, where the flue is necessarily kept at a temperature above boiling water, and where, of course, the steam could not condense.

In the foregoing estimate of the loss of heat by the combustion of green wood, I have considered the subject in a theoretical point of view; or, at least, only in relation to those operations which have for their object the diffusion of heat in the air of apartments. But in most of the arts he object is the reverse of this,—to produce a strong and circumscribed heat. In these cases there is not only an entire loss of that portion of caloric which escapes in the steam from most fuel, (for it cannot be recovered, even if subsequently condensed, to any efficient purpose,) but if the temperature fall, in consequence of this loss of caloric in the steam, below the required point, there must be a total loss of the whole fuel. I suspect that it would be quite impossible for our glass

manufacturers and iron foundries to procure the intense heat required in their furnaces with the use of green wood. I have noticed at several glass-houses, and the practice is probably general, that the weather seasoned pine wood is dried, or rather baked, by a stove heat, at a temperature that not unfrequently ignites it before it is used. I think it not unlikely that this practice might, in many instances, be profitably extended to the ordinary fuel (pine wood) used for steam boilers in our river boats; or, in other words, that a portion of the fuel might be economically expended in drying the remainder preparatory to use. Mr. Bull estimates the average quantity of moisture, in woods which have been weather seasoned from eight to twelve months, at about 25 per cent. of their weight. It may be objected to this suggestion, that although stove-drying may be indispensable where the attainment of a certain high degree of heat is absolutely necessary to the success of the process, yet where this necessity does not exist, the water may be as cheaply dissipated by the absorption of the caloric in the ordinary combustion, as by burning a portion of the fuel separately for that object. To this it may be replied, that the effective heat imparted to steam boilers is not, as is generally supposed, in a direct ratio to the quantity of caloric emitted by the burning fuel, but more nearly in proportion to the elevation of the temperature in the fire-place above that of the water within the boiler. The vapor formed by a fire that shall only elevate the temperature of the water to within a few degrees of the boiling point, say to 200°, bears a very small proportion to that which is produced at 212°; so that it is quite easy to burn a considerable quantity of fuel under a boiler to almost no practical effect. To pursue this subject into the causes of these results would lead to a theoretical disquisition on the laws which govern the communication of heat, foreign to the object of this work.

The great superiority assigned by Mr. Bull to the Lehigh and other anthracite coals, not only over wood but the best English coals, has also excited some doubt, and particularly with us at the north, of the accuracy of the comparison; but this, it may reasonably be supposed, is attributable to a mistake, against which Mr. Bull has warned us in his treatise, that of comparing his results with common experience derived from the very imperfect arrangements for the consumption of this fuel, both in the arts and in our dwellings. Its introduction is of too recent a date to have diffused correct information on this subject, and doubtless we have yet much to learn as to the best methods of applying it to many purposes in the arts.

"The composition balls of Lehigh coal, charcoal, and fire clay," Mr. Bull observes, "were made for the purpose of ascertaining whether a very economical fuel might not be formed of the culm, or fine portions, of the two former, by combining them with the latter article, as they possess very little value: the same prac-

tice having been adopted with considerable advantage in various parts of Europe. The fire produced by these balls was found to be very clean and beautiful in its appearance. Its superior cleanliness is in consequence of the ashes being retained by the clay, and the balls were found to contain their original shape after they were deprived of the combustible materials. The beauty of the fire is enhanced by the shape and equality in the size of the balls, which during the combustion present uniform luminous faces. No difficulty was found in igniting, or perfectly consuming, the combustible materials, and the loss in heat, when compared with the combustion of the same quantity of each article in their usual states of aggregation, was found to be only three per cent." I think there must be an error, probably a typographical one, in carrying out the result of the combustion of this mixture in Mr. B.'s table: allowing the anthracite and charcoal to yield the same heat as assigned to them when burned separately in the aggregate form, they should have sustained the same temperature only ten hours and twenty minutes.]

Bridge across the Hudson.—At a highly respectable meeting held at Albany on Wednesday, Feb. 4th, a committee of 30 was appointed to draw up a petition to the Legislature on the subject of a bridge across the Hudson.

FARMINGTON CANAL.—The damages the Farmington Canal has sustained, in consequence of the late freshet are said to be very great. Those in the neighborhood of Westfield, Ma., are estimated from ten to fifteen thousand dollars.

By the annual report of the directors of the WELLAND CANAL, it appears that there have passed through the canal the last season, 570 schooners, 334 boats and scows, and 66 rafts, the amount of tonnage of which was 37,927. The tolls in 1832 amounted to £2,432; in 1833 to £3,618; in 1834, £4,300. The total amount of expenditure on the canal, including the year 1834, was £411,079 6 11 1.2 or nearly \$1,800,000.

The number of steamboats which passed through the Louisville and Portland Canal, during the year 1834, was 938; the number of keel and flat boats 623; the total tonnage was 162,000 tons, and the amount of tolls received thereon \$61,848 17.

Steam Boat on Crooked Lake.—We are happy to learn that a contract has been made for the building of a steam boat to run on this lake, and that it will be in operation by the first day of July next. The boat will play daily between Hamond's Port and Penn Yan—a distance of about 23 miles.—[Albany Argus.]

Curious Historical Fact.—The first rough model of a steamboat, made by Fulton, in this city, was cut out of a common shingle, shaped like a mackerel, with the paddles placed further before than behind, like the fins of a fish. The paddle wheel had been first put in the rear, on the sculling principle, but was abandoned on consulting with Mr. Greenwood, the well known ingenious dentist of this city, now deceased, in whose possession the model remained for many years. Old Admiral Landais, whom many of our readers recollect as the enemy of Paul Jones, was also in frequent consultation with Greenwood at the time. He recommended the paddle wheel to be placed in the stern, and to be moved by a tunnel shaped sail, that was to catch the wind even when it was directly ahead, and thus communicate the power by reaction to the wheel.—[N. York Star.]

NEW-YORK AMERICAN.

FEBRUARY 7-13, 1835.

LITERARY NOTICES.

WORKS OF MRS. SHERWOOD—Uniform Edition, Vol. VIII: New York, HARPER & BROTHERS.— Another volume of this handsome republication. It contains a variety of stories—some short, others longer—all well told, and inculcating good lessons.

THE BOOK OF NATURE, by JOHN MASON GOOD, M. D., F. R. S., &c. &c.; 1 vol. 8vo: N. York, HARPER & BROTHERS.—We are glad to see this standard book—for as such, by universal consent it is, we believe, received—stereotyped and presented to the American public in so accurate a manner. Delivered originally in the form of lectures, which name, and corresponding division of subjects they yet retain, these essays embrace a systematic and popular survey of the most interesting features of the science of Nature. How great the range thus taken is, will be perceived by the mere mention of the three great heads under which the lectures are arranged:

Series I, treats of the nature of the material world, and the scale of organized and unorganized tribes that issue from it.

Series II, treats of the nature of the animate world, its peculiar powers and external relations, on the means of communicating ideas, and on the formation of society.

Series III, embraces the nature of the mind, its general faculties and furniture.

MECHANIC'S MAGAZINE, &c. &c.: vol. V. Nos. 1 and 2: N. York, D. K. MINOR.—The persevering proprietor, and now sole editor, of this periodical, goes ahead with unabated spirit; although, as we find by a notice in the number before us, his reward from adequate public patronage is yet prospective. Confident, however, that his work merits support, and strong in his reliance upon the intelligence as well as interest of Mechanics generally, not to let an undertaking fail, which is so especially devoted to their benefit, he looks back without regret, and forward without despondency.

FOREIGN CONSPIRACY AGAINST THE LIBERTIES OF THE UNITED STATES—1 vol. New York, LEAVITT, LORD & CO.—A series of numbers which appeared originally in a religious newspaper, the *New York Observer*, have been collected, revised, and with the addition of notes, are republished in a volume under the above title, by the author. The publication is sanctioned by a recommendation from four clergymen, of four different denominations, Episcopal, Presbyterian, Methodist, and Baptist.

The aim of the author is to show, that the Catholic religion has a political character, and that those who profess it are subject to political influence, adverse to the interests and liberties of America; that this character and this influence are actually arrayed under the control of European despotism and notably that of Austria, against the prosperity and progress of our free institutions; and that as Catholicism spreads in the land, the power of those who would, and can wield it to our political overthrow, is increased.

The author is represented as an American for some years resident on the continent of Europe, and whose attention was first aroused to the subject by what he there saw and heard; and whose

inquiries and observations in Italy, led him to the conclusion that danger existed to his own country, and that duty required him to point out that danger.

The cause, it will be admitted, is an important one. The motives of the writer are, upon this shewing, such as to entitle him to a willing hearing, at least; and the decision at which he arrives such as all Protestants and Patriots will unite in. This is, not that there should be persecution, illwill, or associations against Catholics—but that the Bible should be spread far and wide—religious instruction be made more universal—education generally be more extensively and more carefully disseminated—and, finally, free discussion.

We have said thus much of this little volume, because its title is one calculated to excite attention; and we desired, at once, to explain to our readers its meaning and tendency. We have as yet, however, only read a few of its pages, and reserve, therefore, for another day our opinion as to how the case is made out of "A Foreign Conspiracy against the Liberties of the United States."

LEAVES FROM MY LOG-BOOK: BY FLEXIBLE GRUMMEY, P. M. 1 vol. Philadelphia: CAREY, LEA & BLANCHARD.—This is a collection of sea-stories, published originally in an English periodical, and now gathered up in a volume: They are attractive, spirited, and, as we judge, full of good seamanship.

THE NORTH AMERICAN REVIEW; No. LXXVI.—Boston, CHARLES BOWEN.—We have read some of the articles in this number with much pleasure, and one—that on Mr. Jefferson—certainly without conviction, and we add not without regret. Of this however we may have more to say hereafter.

We make to-day another extract from the ingenious paper on poisoning. It refers to Leicester's arts.

The arts improve by time and practice, and under the reign of Elizabeth, that of secret poisoning was introduced from Italy, and flourished under the auspices of no less a personage, than the great Earl of Leicester, the most magnificent subject that ever adorned the British court. Among the persons attached to his household, was an Italian secretary, whom he had brought home from his travels, and was the reputed instrument with which he removed his victims. There is no great reason to doubt, that many of the tales which circulated about the secret practices of this arrogant favorite, were the product of envy and political hostility. They were so generally believed, however, that persons dying of a sudden death, were said to have gone off by *Leicester's cold*; and Camden who wrote his work, under the auspices of the Lord Treasurer Burleigh, gives no doubtful countenance to some of the most atrocious of the insinuations against Leicester. Among his earliest victims was his wife, the gentle Amy Robsart, immortalized by Sir Walter. He married this lady on the 4th of June, 1560; his sovereign, King Edward, was present at the nuptials; and from a passage in his journal, we obtain a knowledge of the somewhat singular bridal festivities of that day. June 4, 1560, Sir Robert Dudley, third son of the Earl of Warwick, married Sir John Robsart's daughter; after which marriage there were certain gentlemen, that did strive, who should first take away a goose's head, which was hanged alive on two cross posts. We commend this extract from the royal journal, to our brethren of the London Quarterly Review, who, a few years since, undertook to found a charge of heathenish barbarity, against the good people of the United States, in consequence of their indulgence, in some part, we forget where, of the western country, in this royal diversissement. After liv-

ing with him ten years, this poor lady disappeared, at a very unlucky juncture for the Earl's reputation; because the world at this time conceived it might be much for his convenience, to be without a wife, this island then holding two queens, young without husbands. She was prevailed upon to visit Cammer-house, the seat of Antony Foster, one of Leicester's architects. There the unfortunate lady became ill—the consequence of the infernal practices upon her, which however produced their effect too slowly to answer the desired end. She was importuned by Foster and his tool Varney, to take medicine for her disorder. They, seeing her sad and heavy, as one that knew by her other handling, that her death was not far off, began to persuade her, that her present disease was melancholy, and other humors, and would needs counsel her to take some potion. This she absolutely refusing to do (as suspecting the worst,) they sent a messenger for Dr. Rayly, professor of Physic, in Oxford University, and intreated him to persuade her to take some little potion, by his direction. They would fetch the same at Oxford, meaning to have added something of their own for her comfort, as the doctor, upon just cause and consideration did suspect, seeing their great importunity and the small need the lady had of physic, and therefore he peremptorily denied their request. As well he might, for a part of this ingeniously contrived plan, was to mix a deadly poison with the medicine, which the doctor might prescribe, and thus throw upon him the responsibility of her death.—Her wariness baffled the attempts at poison, and she perished by arts still more atrocious. The superb and remorseless hypocrite who caused her death, bestowed upon her the honors of a splendid funeral; but his own chaplain, in pronouncing her eulogium, stammering under the load of the dark and universal suspicion of foul play, twice in the course of his address, invoked the sympathy of the audience for the fate of the poor lady 'so sadly murdered.'

The next experiment of Leicester was upon Lord Sheffield, who suddenly died, and, as it was charitably rumored, of a *Leicester cold*. Leicester shortly after espoused the widow, and under the pretence that the Queen would be offended at the marriage, compelled her to keep it secret. After some time, the more effectually to conceal the connexion, he required her to marry Sir Edward Stafford. This she refused, till under the gentle discipline of Leicester, her hair fell off, and her nails dropped out, and she did what was demanded of her, to save her life.—These facts are certified by her own testimony on oath, and atrocious as they are, incredible as they seem, they are related by Sir Wm. Dugdale, and do not appear to be discredited by Camden.

The Earl of Essex went off in the same way, and for the same cause; but his countess happily survived this western Blue Beard. Besides his two first wives, and the husbands of the two last, there were others who were publicly said to have travelled the same road, by the same conveyance. The Cardinal Chastillon, ambassador from France, was poisoned at Canterbury, on his way homeward, and as was believed, by Leicester, out of revenge for the freedom which the Cardinal had expostulated with Queen Elizabeth, on the arts with which Leicester defeated her marriage with a foreign prince. Sir Nicholas Throgmorton was seized with a mortal complaint at the Earl of Leicester's table, and died before he could be removed. Thus much appears by a letter of Leicester himself to Walsingham. That he perished, in consequence of poison given him in the salad, rests upon a tradition in the family, purporting to be founded on the dying asseveration of Sir Nicholas. The Earl of Sussex, his great rival, was one of his reputed victims. On his death-bed, he gave this warning to his friends: 'I am passing into another world, and must now leave you to your fortunes, and to the Queen's grace and goodness; but beware of the gipsy, (Leicester,) for he will be too hard for you all. You know not the beast as well as I do.—' These dark imputations and many others of like import may be believed, when we reflect that Camden states positively, that Leicester proposed in council, that Mary, Queen of Scots, should be removed by poison. The biographer, who records all these facts, adds with commendable

simplicity, that 'they must be exaggerated at least, if not false, since the earl at this juncture, (that of Lord Sheffield's death,) obtained an act of parliament to enable him to erect a hospital at Warwick, which he afterwards did, and plentifully endowed it, that it might bear his name, and preserve his memory, as a most religious person,—the character which, of all others, he most affected,—to succeeding times!" Well done, candor!

SUMMARY.

Destruction of the Athenæum, Baltimore.

This elegant building, we regret to state, was destroyed by fire on Sunday. When the alarm was first given, about an hour before noon, the fire was seen bursting through the windows of the third story near the western end. The flames soon rose to the fourth story and afterwards to the roof, and a strong wind from the north west carried them rapidly to the eastern and southern parts of the edifice. Large flakes of fire were wafted to the roofs of the adjacent houses, and in two or three cases had actually communicated to the shingles, but they were immediately discovered and extinguished.

The fire was happily confined to the premises in which it originated, but the devastation there was complete. From the roof down to the floors of the basement, the flames have devoured every thing combustible. The offices of the Attorneys in the basement and second stories were all cleared of their books, papers and other contents, before the fire reached them. Except the damages incident to so hasty a removal, it is believed that the gentlemen of the Bar have escaped without loss. In the third and fourth stories, however, the loss has been extensive and heavy.

In the fourth story were the rooms occupied by the *Maryland Academy of Arts and Sciences*. In these were arranged, in costly and elegant cases and fixtures, valuable and interesting cabinets of minerals, shells, insects, birds, and other specimens of Natural History—a collection of fifteen years' formation. There was also a Library of costly works, not so valuable for its extent as for its interest and fitness for the purposes for which it was established. Buffon's Natural History, in 100 volumes, was among them. Added to these was an extensive collection of phrenological casts, imported from Edinburgh, comprising the heads of several hundred celebrated individuals. We learn that the property of the Academy was insured, but the loss, in many respects, is one which money cannot easily replace.

The *Baltimore Lyceum Library* was in the 3d story. We are informed that this institution had recently purchased the collection of books which was formerly known as the Athenæum Library. Here, we believe, there was nothing saved.

On the same floor were the *Lecturing Hall* and *Library of the Maryland Institute*, and a valuable philosophical apparatus—nothing of which was saved.

The *Young Men's Society* also occupied a room or two in the building, and it is said their loss in books is several hundred dollars.

The elegant *Musical Saloon*, so frequently used on public occasions, was the last of the upper rooms destroyed. The frame work which formed its arched and beautifully ornamented ceiling added, for a time, new vigor to the flames. The few movable articles it contained were saved, but there was no time afforded to take down an excellent organ belonging to Mr. R. Shaw, teacher of psalmody, and it was consequently involved in the general destruction. We learn that there is a policy of insurance on the organ for \$1000, which does not, however, cover its value.

The *Athenæum Building* is insured in the *Equitable Society's* office for \$20,000, and we hear that there are policies for \$10,000 each, in two other offices.

DETROIT, JANUARY, 22.—Postscript.—The bill authorizing the People of Michigan to form a State Government was passed by the Council this morning. It authorizes the election of delegates to take place on Saturday the 4th of April next, and the time for holding the Convention on the bill are retained. What say the freemen of Michigan to this?—[Journal.]

Extract of a letter from an Officer in the Dragoons, dated

FORT LEAVENWORTH, JAN. 4, 1835.

I returned on New-Year's eve from a trip across the country to the Kansas Indians, about ninety miles west, having gone there for the purpose of paying them their annuity. I was absent eight days, and had to spend four nights in the woods—not a very pleasant thing at this season of the year. My duties as Paymaster to the Indians and Indian Agents, employ a large portion of my time, and require frequent absence from the post, having four agencies, and a number of tribes to pay, some of them above Council Bluffs. The Kansas are in nearly a wild state, living in lodges composed of dirt or buffalo skins, neatly formed, and the skins beautifully painted. In the same lodge you will frequently find an Indian, with his three wives, and eight or ten children, living in the most perfect harmony. After getting through my business in the day, I generally spent the evening in their lodges, although it was sometimes a severe task, as the fire, which is built in the middle of the floor, would make so great a smoke, that it was almost impossible to breathe. The Indians, being accustomed to it, did not mind it, and I would cross my legs before the fire, on the ground, and stand it as long as I could. In order to have a little sport, I put up a red blanket for the squaws to run for: about a dozen started, stripped, except a piece of cloth around their bodies. The race (about four hundred yards) was well contested, and the winner was carried off in exultation by her band. I made myself quite popular with them, by carrying a paper of red paint in my pocket, and painting a number after their fashion, both their hair and face; and I can assure you it had not a bad effect. I have a pipe and tobacco pouch, which was presented to me by one of the prettiest girls I saw among them. She was about fifteen, and a widow, her husband, the son of the head Chief, having died two years before—the time they wear mourning, or rather, go in sackcloth and ashes, wearing the oldest skins during the whole time, and every morning putting a parcel of ashes on their hair; and as long as the ashes remain on, they cannot either eat or drink, without water is brought by some of their friends to wash it off; and every night and morning they cry most bitterly for about a quarter of an hour. The first morning after we got there, we were awoken by three of the wives of the Chief that had been killed a short time before, crying most hideously by our tent; and there they continued until something was given them, and they then went off. The time of mourning of the young widow being out, her father brought her up, dressed in their richest fashion, in scarlet, and painted, to shake hands with their father, as Major Cummins, the Agent, is called, and the Great White Chief, (myself.) She looked so pretty that I gave her a scarlet blanket, and she, in return, gave me a pipe and pouch—the pouch is the skin of a skunk. I told her that I should keep it, and carry it on to my friends that lived three moons (months) travel from there, and that I would tell them that it was given to me by the prettiest girl in the nation, and the daughter of one of their greatest Braves, &c. at which she seemed much pleased.

RAILROAD ACCIDENT.—On Sunday, the 25th ult. a serious accident occurred on the Lexington and Ohio Railroad, near Lexington. The locomotive was propelling instead of dragging, two burden cars and a passenger car of unequal height. The burden cars were filled with people, and no railing around the platform on which they stood to prevent their falling off. In passing a curve, the projecting end of one of the burden cars passed above, instead of meeting plump, the corresponding projection of the next car, and was thereby raised up and thrown off the rail.

The sudden jerk and change of direction, caused a considerable shock and great alarm: some of the passengers on the burden cars attempted to jump off—Those standing on the forward burden car, were, of course, most sensibly affected, having no safe guards; some were thrown backwards and knocked off those

standing near the side, under the wheels of the succeeding car and tender. But for a sloping bank at the point where the accident occurred, most probably, no serious accident would have been the consequence, for all seemed to clear the rails in jumping or falling off.—*Lewis Leonard* of Lexington, reached the bank, and fell or rolled back under the hind wheel of the rear car, which passed over and killed him: his body impeding the front wheel of the tender, and thus, with the instant action of the admirable engineer, preventing the loss of several lives.—The engineer stopped the moment he saw the accident—quicker than a carriage, with horses, could have been halted.—*Leonard Taylor*, of Lexington, and *Daniel Green* of Fayette, had each a leg broken—*Alexander Shidel* and *Samuel Long*, Sen. of Lexington, *Wm. A. Cocke* and *Joseph Holt* of Louisville, and *P. W. Tarp-nall* of Springfield, were all thrown or knocked under the car by the sudden shock or by the multitude jumping out, and severely bruised.

Mr. Cocke's escape with life was remarkable. In attempting, with his feet, to push himself from the car after he had fallen, the forward wheel of the rear burden car caught his left foot and held it so fast, that it was necessary to cut off his boot and take that side of the car to pieces, before he could be released—another move of the wheel would have been fatal; as it was, his foot was very severely torn.—The presence of mind and promptitude of the Engineer saved him.—[Lexington Journal.]

HOLLAND LAND COMPANY CAUSES.—Another of these causes (against Daniel Kemp) came on to trial in the district court of the United States before Judge Conkling, on Tuesday, the 27th ult. and continued from that time until yesterday, when a verdict was rendered for the plaintiffs.—In this case, we learn that the plaintiffs deduced a title to the lands claimed by them from the State of New York to the State of Massachusetts, and from the latter to Robert Morris. They then relied on a Sheriff's sale under a judgment and execution against Robert Morris, through which the title was transmitted to them. In the course of the trial, the nature of the Indian right came under discussion, and the plaintiffs contended that it was a mere right of occupancy, personal to the Indians, which could not be transmitted, and which could not be set up in bar of an action of ejectment brought by a person having the title of the soil; that it was to be deemed extinguished, from the fact that the country was and for many years had been occupied by the whites; and the plaintiffs also gave in evidence a treaty held with the Senecas in 1797, by which their right to the premises had been extinguished. Numerous exceptions were taken by the defendant's counsel to the decision of the court in the various questions presented. The case was conducted by John C. Spencer and Daniel Cady, Esqrs. for the plaintiffs, and by Joshua A. Spencer and Samuel Stevens, Esqrs. for the defendant.

We learn that a third cause (against Sylvester Lock) was commenced yesterday, and that in this the plaintiffs counsel have gone into another chain of title directly from Robert Morris.—[Albany Argus.]

An aged Blanket.—The Boston Transcript says, a boy about six months old, was carried to church to be baptized, the other day, wrapped in a blanket which once belonged to the family of the Cottons; and was brought by John Cotton, from England to this place 199 years ago. The material of which it is formed, appears to be the kind sometimes called cotton flannel, but the cotton furz, or nap, is nearly worn off. The body of the cloth is still tolerably good, and may last with care another century.

Buying a Hat.—"Misther, have ye ever a palm leaf hat?" "Yes, sir." "I wad be afther purchasing one, and what will you ax?" "Nine shillings." "Nine shillings! but that beats the devil intirely I could buy the same for four and sixpence a while since!" "Oh well, wait a while till summer is over and you may have this for that price." "True for ye, and what'll cover the head of me the while?" "O, by the powers, I'll fix it so that nather of us will be cheated—I'll take the hat now and pay when the price is down."

ACCIDENTS ON THE ROAD.—Mr. Bullard, a much esteemed merchant of Boston, was returning from Ipswich to Boston on the 3d instant in the stage, when it was upset by the driver's running against a wagon. Mr. B., who was on the coachman's seat, was thrown with violence to the ground: the stage fell on him, broke his collar bone, ribs, and otherwise so seriously injured him, that he survived but a few hours. His wife was inside the stage, and escaped uninjured.

On the 4th instant, the stage to Albany on the west side of the River, was upset near Newburg, and Mr. E. Tibbets of this city, a passenger, had two ribs broken.

Whales in the Sound.—Capt Marther of the revenue cutter Wolcott, saw a few days since, two large whales in the vicinity of New London light house and Fisher's Island.

SAILORS' SNUG HARBOR.—The annual report of the Trustees of the Sailors' Snug Harbor, was made to the Senate yesterday.

The receipts for the year, from rents, dividends and various other sources, were

Cash on hand, 31st Dec, 1833,	\$34,744.65
	2,011.96

\$36,756.61

Disbursements, including \$1,477.49 for erecting a monument to the memory of Mr. Randall,	\$33,568.98
Cash on hand, 31st Dec. 1834,	3,187.63

\$36,756.51

The vested funds of the institution at par value, the cash on hand, and the outstanding rents and interest, amount to \$102,754.38. The income for 1835, is estimated at \$29,519.74. The President states, that "there are now in the Snug Harbor fifty-four aged and disabled seamen, who are entitled to support under the provisions of Mr. Randall's Will, and the doors are open for further applicants. These aged men are plentifully fed, comfortably clothed, and supplied with every thing requisite to soothe their declining years."—[Albany Argus.]

INSPECTION OF TOBACCO.—The first annual report under the law providing for the inspection of leaf tobacco, in the city of New York, was made to the Senate yesterday, by James D. Stevenson, inspector.

The following is the amount inspected from 22d April (the day the law took effect) to the 31st December:

Hhds. tobacco.	Weight.	Probable value.
5791 merch'ble	7,702,030 at 7cts.	\$539,142.10
118 unmerch.	159,433 5	7,971.65

5909	7,761,463	\$547,113.75
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Amount of fees for inspection,	\$11,818.00
For storage,	1,556.00

\$13,374.00

Expenses, officers, deputies, coop- ers, &c.,	11,958.00
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\$1,416.00

Appended to the report are a number of letters, from importers and growers of the article, many of whom (the inspector states) opposed the passage of the law, expressing a decided conviction of its beneficial operation. Of the tobacco inspected, 3657 hhds. were the growth of Kentucky, 1754 of Virginia, 413 of Ohio, and 85 of Maryland.—[Albany Argus.]

Henry A. S. Dearborn has been appointed Adjutant General of Massachusetts, and entered upon the duties of his office.

An honorable Anecdote of Erskine, the eminent lawyer.—A poor man, in a distant part of Scotland, who wished to obtain redress for a wrong done to him by a wealthy neighbor, being cautioned against contending for his right in such a case, gave his friendly adviser this answer: "Ye dinna ken what ye say, Maister; there's nae puir man in Scotland need to want a friend, or fear an enemy, while Harry Erskine lives!"

Sudden Death.—The Rev. Joseph Sanford died in his pew in the Methodist Church in Green street, a few minutes after taking his seat on Sunday morning. He walked to the Church in company with his wife, to whom he had been married but two weeks, from his residence in Mulberry near Bleecker street, and while on the way complained of some slight indisposition.—He was noticed in a kneeling posture in his pew, and after a supplication to his God, rose and fell back lifeless on his seat.

Propensity of Birds.—At the recent fire in Spring street a covey of pigeons was observed hovering over the flames at a great height, presenting a beautiful appearance, resembling that of gold, caused by the reflection of the light below. For several minutes they were seen darting in every direction, as if at a loss where to wend their passage. At last they were noticed to follow the propensity ascribed to birds by naturalists, and plunged one by one into the flames, where they perished.—[Com. Adv.]

Feather Dressing.—Mr. Philip Wilcox has now in use at his shop a very simple apparatus for cleansing and restoring life to feathers, by means of heat and action in a large revolving cylinder over a coal fire. The feathers are thus purified from all dampness, perspiration and noisome effluvia collected in use, and restored to their original life. Mr. George Reynolds of East Hartford is the inventor. Mr. Wilcox has the last week, dressed twenty or more beds for different families in this town, and the improvement has surprised them.

So says the Litchfield (Ct.) paper; but what sort of life is restored by this process?

Capture of a Slave.—The British brig of war Cruiser arrived at Havana on the 18th ult. with a schooner which she had captured, having on board 340 slaves. Four vessels had recently arrived there and landed their cargoes, consisting of 2300 slaves.

Education in Russia.—The whole number of pupils of schools in Russia, is 65,589, out of a population of fifty six millions. *ie. two to every 1,465 inhabitants!*

Principles and Practice.—"Give me," said an infidel, to a distinguished French divine, "your principles, and I will be a better man than yourself."

"Begin," replied the believer, with being a better man, and you will soon have my principles.

The promise of our gracious Redeemer harmonizes with this sentiment: "If any man will do his will, he shall know of the doctrine whether it be of God."

ALABAMA.—The Legislature of this State adjourned on the 10th ult:

Among the acts passed (217 in number!) was one prohibiting the circulation of any bank notes under *five dollars*, of banks out of the State.

Eleven bills of divorce were granted by this Legislature.

We have recently seen an estimate in the papers, that the number of divorces granted annually in the United States is near *two thousand!*

What a state of morals does such a fact—if true or approaching to truth—imply?

It becomes our melancholy duty to announce the death of another aged, patriotic and universally esteemed citizen, William Patterson, Esq. He departed this life on Saturday last, in the eighty-third year of his age.—[Balt. Amer.]

MILITIA APPOINTMENTS.—By the Governor and Senate of New York.

Montgomery.—Benedict Arnold, major general of 2d division of cavalry.

Niagara.—Edward Cole, major general of 4th division of artillery.

Westchester.—Aaron Ward major general of 4th division of infantry.

New York.—Ebenexer Irving, major general of 28th division of infantry.

Jefferson.—John W. Edwards, brigade inspector of 4th brigade of infantry.

Commendable Enterprise.—We learn from the Philadelphia Inquirer that the sum of fifty thousand dollars has been subscribed for the purpose of establishing a line of steamboats to tow vessels up and down the Delaware. It is a commendable enterprise, and one that will be of great advantage to the commerce of Philadelphia.

AMERICAN QUARTERLY REVIEW.—We have before stated that Mr. Robert Walsh with his son as associate, has become the proprietor of this periodical. We may now add that Mr. Maximilian Towseky is in this city with a view to obtain subscribers for the new series commencing on 1st proximo. We cordially commend this Review to the patronage of our citizens.

It appears by the annual address of the Mayor of Boston, that the city debt on the 1st Jan. was \$1,265,164, the whole of which, except \$100,000 had been created since the city was incorporated. The annual taxation is \$9 40 on \$1000. The city (says the N. Y. Star,) maintains 72 primary schools, having 4,014 pupils between four and seven years of age; ten grammar, one Latin, and one English High school—in all of which are 4,009 pupils, chiefly from seven to fifteen years of age. Thus the city educates 8,423 children at a cost annually of \$8 each child, exclusive of interest on the buildings. The number of pupils in private schools is about 4,500, which is a total of 12,923 pupils in a population of 70,000. The city owns 20 engines, 25 hose, 4 bucket, and 3 hook and ladder companies, making in all 1,257 members, the expenses of which are \$16,000.—The annual amount of property destroyed by fire the last three years is \$63,000. The fire department is very efficient.

A bill is before the Legislature of New Jersey, to incorporate a Life Insurance and Trust Company, with a capital of 1,000,000 of dollars, to be located at Hoboken! The bill is modelled after the New York Life Insurance and Trust Company's Charter, which gives pretty ample powers and privileges.

Divorces in New Jersey.—Matrimony appears really upon the eve of "breaking up house keeping" in New Jersey. The number of applications for divorces to the Legislature now in session, has been beyond all former example. Three petitions were presented in one day, during the last week. We are afraid that bad husbands or bad wives are more plentiful in New Jersey, than they should be.

Inducement to Matrimony.—A Texas letter writer states that the tide of emigration to that country from the United States is very great.—Nor can this be a matter of surprise, when it is added that the Mexican government assigns to each settler, if married, a league square, 4446 acres, of land as a bounty. If the emigrant be a single man when he arrives, he gets only 1110 acres—but if he gets married afterwards, he receives the very pretty dowry, not from his bride, but from the Government, of 3336 acres more!—[Com. Adv.]

A laughable adventure.—Not long since, a reverend clergyman in New Hampshire, being apprehensive that the accumulated weight of snow upon the roof of his barn might do some damage, resolved to shovel it off. He therefore ascended it, but having first, for fear the snow might all slide off at once, himself with it, fastened to his waist one end of a rope, and giving the other to his wife, he went to work; but fearing still for his safety, "My dear," said he, "tie the rope round your waist." No sooner had she done this, than off went the snow, poor minister and all, and up went his wife. Thus on one side of the barn the astounded and confounded clergyman hung, and on the other side hung his wife, high and dry, in majestic sublime, dinging and dangling at the end of the rope. At that moment, however, a gentleman luckily passing by, delivered them from their perilous situation.

PREPARATION AND PRECAUTION.—The Baltimore American of yesterday publishes the annexed extract of a letter from Washington:

"Our squadron in the Mediterranean is ordered to Gibraltar, to prevent sequestration in a French port, or blockade in a Spanish. Commodore Elliot hoists his broad pendant on the Constitution, and proceeds from New York to the Mediterranean. Captain Kennedy is to command the Peacock and Boxer, and proceed to the Chinese seas, for the protection of our commerce in that quarter, and the whole naval establishment is to be put on a war footing."

COMMERCE WITH FRANCE.—It is wise to look before we leap, to count the cost of a war before we rush into it. A communication we publish from the Journal of Commerce, will assist our readers in the last process. A letter from the Baltimore American, of which we also insert an extract, seems to look, if authentic, as though our Government apprehended that France might take the initiative of hostilities.

We do not ourselves think this probable, but if she should, it would overwhelm the commerce, and especially the Insurance Companies of this country with ruin. One single company, for instance, in this city, has insurance on property amount to the amount of twenty millions of dollars! two thirds of which, at least, would, in the event of instant hostilities, be captured or destroyed.

Let us then pause and prepare—let us not act rashly, to repent at leisure.

[From the Journal of Commerce.]
Our Trade with France.

In order to form a correct notion of our affairs with France, the following statements, taken from the Treasury Report, will serve for a guide:

	Imports.	Cotton exported.
1829	\$9,617,000	\$5,800,000
1830	8,340,000	7,650,000
1831	14,735,000	4,300,000
1832	12,755,000	7,725,000
1833	13,963,000	8,500,000

It will be perceived that the imports are rapidly increasing, being in 1833 about 45 per cent. above the amount of 1829. The average of imports for the last 5 years is about 12 millions.—The export of Cotton has augmented about 30 per cent. within the 5 years ending 1833, and that for 1834 will be much larger than that of the preceding year. The average export of this article, for the 5 years ending 1833 is about 7 millions of dollars. The amount of exports (beyond the cotton) necessary to pay the balance due for the imports, is made up of Rice, Tobacco, Ashes, with some foreign articles, and occasionally Specie is shipped, as in 1829, when 1 3/4 million dollars, and in 1831 when 3 million dollars were sent. Taking one year with another, 7.8 of our exports to France are of the products of our soil, carried chiefly in American vessels, giving freight and employment to about 130,000 tons of American shipping. Since the reduction of duty, French tonnage entering our ports has increased, and it now stands to the American from France, as one to five.

The following statement will show the leading articles which form our imports from France:

	Silks.	Md. Wool.	Md. Cot.	Wines & Md. Lard.	Brandy.	ther.
1829	\$4,365,500	540,000	500,000	1,000,000	415,000	
1830	3,555,000	485,000	650,000	910,000	373,000	
1831	7,250,000	1,190,000	1,545,000	914,000	585,000	
1832	5,000,000	770,000	1,330,000	1,530,000	467,000	
1833	6,400,000	1,045,000	1,200,000	1,800,000	635,000	

The above exhibits a great increase for the last 5 years, and there is reason to expect that if the trade suffers no extraordinary interruption, it will go on augmenting in quite as great a ratio. Silks, which make so large a portion of the imports, are well adapted to our wants, and are become so common an article of clothing, that we are not likely to do without them, even if we have to seek them through indirect channels. The Import of Woollen and Cotton manufactures is destined to be enlarged in proportion as by the existing law our Tariff becomes re-

duced, and although Brandy may be lessened in demand from local causes, yet for the same reason the use of Wine will much increase. It may be too worth considering whether the health and morals of the people are not improved by the use of a wholesome beverage such as mild wines offer, rather than ardent spirits, and whether in any event, the Government would not show wisdom in keeping down the duty on wines for the purpose of a more extensive consumption.

Notwithstanding the duty is still high on manufactures of leather, it will be seen that the importation has kept pace with those articles on which the duty is repealed,—a proof that they are necessary, and we can obtain them from no other source at so cheap a rate. In short, our whole trade is in a flourishing state. The importation of silk and leather manufactures has increased 50 per cent. in five years, while that of woollen and cotton manufactures has nearly doubled within the same period, and there is good reason to expect a further extension in the ratio of our increasing population. Of the whole imports, less than 10 per cent. (as near as can be ascertained,) only is re-exported to the West India and Mexican markets,—which clearly shows, by so large a portion of consumption, that the goods are suited to our wants, and that we cannot supply ourselves with them elsewhere.

The French themselves attach much value to the intercourse with this country, and view with satisfaction the interchange of articles the manufactures and products of the soil of each nation, and which each derives benefit in exporting to the other. But according to data furnished by the French journals, it is apparent they overrate the amount of the trade.

In the debate in the French Chamber of Deputies, April 1834, on the question of the indemnity bill, the Minister of Commerce, Mr. Duchatel, states the exports to the United States as follows:—

	fr. 65 millions.	\$12 millions.
1829	69	13
1831	110	204
1832	58 (Cholera)	11
1833	106	20

These accounts are from January to December of each year. Besides the disagreement between the French statement and our own for each year, there is a general irregularity in the sums as compared with ours, which is altogether unaccountable. The whole is greatly exaggerated, possibly for effect, the Minister being desirous to impress on the Deputies the loss the nation would sustain by an interruption to the trade, which might arise in consequence of their refusing to pass the bill. The loose and inexact manner the exports are estimated in France, is a cause why no dependence can be placed on the above statement. The method of ascertaining the amount of exports of dry goods, is by weighing them and fixing a rate of export duty per kilo-gramme, which rate has been established many years, without reference to the cost of manufacture. Thus a piece of silk which cost 4f. the ell, will pay the same duty as one which cost 2f. the ell, at the same time the dearer may weigh less than the cheaper piece.

Our statements derived from the Treasury Reports are plain facts, which shew that the trade is advantageous, has been on the increase for several years, and will become still more extensive if the harmony now existing between the two countries be maintained.

"We understand," says the Globe of yesterday, "that information has reached the War Department, stating that several rencounters have taken place between some of the citizens of Georgia and parties of the Creek Indians who crossed from Alabama into that State, and committed many depredations. Persons have been killed and wounded on both sides, and the inhabitants seem much alarmed at the conduct and threats of the Indians, and have called upon the Governor of Georgia for a militia force to protect them—and the Governor has requested the interposition of the President to relieve the citizens of Georgia from this state of things."

Great age.—Jennings Allen, a soldier of the revolutionary war, died lately in Fairfield Dis-

trict, S. C. at the age of one hundred and four teen years.

STRAWBERRIES—EXPENSIVE BREAKFAST.—Under date of May 29, 1783, we find this paragraph in one of Miss H. More's letters:

"Did I tell you that the Bishop of Chester's Sermons were out of print in eight days. I hope the age is not so bad as we took it to be; and yet it cannot be very good, when the strawberries at Lady Stomont's breakfast, last Saturday morning, cost one hundred and fifty pounds."

This sum is equal to about \$700, which will support a whole family a year, or buy land enough for a farm.

MANUAL LABOR AND MENTAL CULTIVATION.—"My conviction—not lightly taken up, but the result of long and earnest thought—is, that daily occupation with manual labor is in no way incompatible with the highest mental cultivation and refinement; that so far from the exercise of mechanical employment daily, for a moderate time, being detrimental to the mental powers, it has, on the contrary, a decided tendency to strengthen them; and that if those who at present serve the public in the capacity of writers, were to employ several hours a day in mechanical labor, their bodily health would be improved, and their writings would take a character of vigor, startling even to themselves. They would find the workshop a more healthy atmosphere than the drawing room. There is no reason, save ignorance, why any thing like degradation should attach to the character of the working mechanics. There is no reason, save ignorance, why they should not have dwellings as good as their employers, as to all the purposes of comfort. There is no reason, save ignorance, why they should not have refreshing baths, after their daily toil, and abundant change of comely garments conducive to health. There is no reason, save ignorance, why they should not have abundance of good and well-prepared food for the body, and access to books of all kinds for the proper culture of the mind. There is no reason, save ignorance, why they should not have access to theatres, and operas, and lectures of all kinds, and picture and sculpture galleries, and museums, far more imposing than any thing the world has yet beheld. There is no reason, save ignorance, why the great body of the working people should not possess, in addition to all that is necessary for the comfortable maintenance of the body, all the pleasures of mental refinement, which are now only within the grasp of the very rich. There is no reason, save ignorance, why the ruling power of the state should not be in their own hands, and all else, save only the excitements of ostentation and expensive sensuality." —[Tait's Magazine.]

There is much truth and good sense in the preceding paragraph—enough, indeed, to secure comfort, intelligence, and happiness, to thousands, if they will believe, and will it.

The venerable M. D'Ornay, member of the Academy of Sciences of Rouen, died recently at Paris, aged upwards of 100.

A Legend of Nummernips.
(A VERY CELEBRATED GERMAN FAIRY.)
Translated from the German.

One day as Nummernips was sunning himself in the corner of his old garden, which was now like any other part of the Harz mountain, there came trotting gaily along a woman who attracted his attention. She had one child in her arms, she carried one on her back, she led one by the hand, and a somewhat larger boy bore along a heavy basket, which was to be filled with greens for the cow. A mother, thought Nummernips, is a good creature to be sure, she drags on her four children, waits upon them without a murmur, even if she has the weight of the basket bear'd. These thoughts made him wish to have some talk with the good woman. She set the children down on the grass and stripped some leaves from the bushes. In a little while the baby began to grow tired and to cry. The mother left off her work, played and frolicked with the children, took the little one up, jumped about and sang to it, at last rocked it to sleep in her arms and returned to her work. Soon the flies bit the little sleeper and he began his music again; but the mother did not grow impatient; she went into the woods and picked strawberries and raspberries, and put the smallest child to her breast. This motherly management pleased Nummernips much, but the little crier, who had ridden on his mother's back, would not be contented, he was a naughty, violent boy, threw away the berries that his kind mother offered him, and then cried for them to eat. At last she grew impatient, and called out, come Nummernips and take away this screamer. Immediately Nummernips took the figure of a coal-man, stepped up to the woman and said—Here I am, what would you have? The woman was very much frightened at this sudden appearance, but she was a brave hearted woman, and soon gathered courage. I called you just now, said she, to still the children, but as they are now quiet I do not need you, though I am much obliged to you for your kindness. Do you know, said the old fellow, that people do not call me here unpunished? I hold you to your word, give me the screamer that I may eat him, I have not met with so nice a bit for a long time. As he said this, he stretched out his hand to take the boy.

As a man, when she sees a hawk hovering high in the air, or the wicked wolf creeping into the yard, first calls her chicks into the secure hen coop, then ruffles her feathers, spreads out her wings and begins with her strong foe, an unequal contest, so did the woman seize the black coal-man fiercely by the beard, doubled her fist, and cried out, monster, you must first tear my motherly heart from my body before you take away my child. Nummernips had not expected so violent an attack; he stepped back, having never before felt the strong gripe of a human hand. He smiled kindly on the woman; do not disturb yourself, said he, I am no flesh eater, as you suppose, and will do you and your children no harm, but let me have the boy, I like his looks, I will bring him up for my own, I will clothe him in satin and silk, make a brave knight of him, and he shall grow up a brave knight, who one of these days will support his father and brothers. If you ask a hundred crowns for him I will pay you now.

Ha, ha, laughed the woman, you like the boy, do you, he is one of a thousand, that I would not sell for all the treasures in the world.

You fool, answered Nummernips, have you not besides three children who give you trouble and pain, whom you can hardly feed, and who plague you day and night?

Woman—Oh well I am a mother, and must follow my calling, children give pain, but they also give pleasure.

Nummernips—Fine pleasure to bear with their howling, to drag them and feed them.

Woman—In truth, sir, you do not know a mother's joys, all her labor and fatigue is sweetened by one friendly look, the pretty smiles and lipings of the little innocent creatures. If I look only at the little gold headed fellow as he hangs

on me, the little flatterer, he is not crying now you see. Oh, if I had a hundred hands I would lift and carry any thing in working for you, dear little creatures.

Nummernips—But has your husband no hands to work?

Woman—Oh, indeed he has, I feel them sometimes.

Nummernips—What, does your husband dare to raise his hands, and against such a wife? I will break him of that trick, the murderer.

Woman—(laughing)—You will have a great many necks to break, if you break the necks of all the husbands who abuse their wives—they are a poor race, and those who wed, take sorrow to bed—but it must be borne, for why was I married.

Nummernips—If indeed you knew that the men were a bad race, you were much to blame when you married.

Woman—May be so, but Stephen was a brave lad, who had a good trade, and I was a poor girl without a dowry. He came to me, and asked me to marry him, gave me a wild man's dollar, and the bargain was made. He afterwards took the dollar away from me, but I have the wild man still.

Nummernips—Perhaps you have made him wild by your obstinacy.

Woman—Oh he has driven that all out of me, I assure you. He is a violent fellow. If I behaved like an angel he would be more furious in the house than you good Nummernips are in the mountain, and then he tells me of my poverty and that stops my tongue. If I had brought with me a portion, I would stand my ground better with him I assure you.

Nummernips—What is your husband's trade?

Woman—He is a glass trader. His calling makes him cross, sometimes. The poor fellow bears his heavy loads from Bohemia, year out and year in. If he breaks a glass on the way I and the poor young ones must suffer, but love blows do no great damage.

Nummernips—But can you love your husband when he abuses you so?

Woman—Why not? Indeed, is he not my children's father. That makes up for all, and they will pay for all our troubles when they grow up.

Nummernips—Poor comfort, children reward their parents with trouble and care indeed! The last drop of comfort will be drained from your cup, when the Emperor sends them far away in his army to be killed by the Turks.

Woman—Oh fie! that does not trouble me:—if they die, 'tis for their Emperor and country, in their proper calling. But if they live, they get booty and gladden their parents' hearts.

Upon this, Nummernips began again to traffic for the boy; but she gave him no answer, crowded the leaves into her basket, tied the little screamer fast to her belt, and Nummernips turned as if he was going to leave her, but as her load was very heavy, she called him back and said, I have called you once before, help me up, and if you would do me any farther kindness, give the boy who pleases you so much a Good Friday penny to buy him a couple of biscuits.—To-morrow the father comes home, and will bring us some white bread from Bohemia. I will help you up, said Nummernips, but if you will not give me the boy, you shall have no penny.—Very well, said the woman, and went her way.

The farther she went, the heavier grew her basket, and every ten steps she had to take breath. She thought something was out of the way, and that perhaps Nummernips had played her a trick, and hid a heavy stone among her leaves. So she put her basket down on the next fence and emptied it. But there fell out leaves only and no stone. Then she filled it half up, and put as many leaves in her apron as it would hold, but soon it grew too heavy again, and she was obliged to throw away some more, which made the stout woman wonder greatly, for she had often carried home much larger quantities of grass, and never felt such fatigue. Nevertheless she set her household in order when she got home, threw the leaves to the goat and little kid, gave her children their supper, put them to sleep, said her evening prayers, and quickly and gaily sunk herself to slumber.

The first red of the morning, and the waking baby, who called for his breakfast with a loud voice, disturbed the healthy slumbers of the busy wife and called her to her daily labor. She went first, according to her custom, with her milk pail to the goat's stall—What a dreadful sight. The good old goat, who nourished the family with milk, lay there stiff and cold, her feet stretched out, already dead, but the kid was rolling its eyes in its head, stretched out its tongue, and showed by many signs that it was near dying. Such a misfortune had never happened to the good woman since she had been a housekeeper; struck dumb with fear, she sunk down on a bundle of straw, put her apron before her eyes, that she need not see the pain of the dying kid, and sighed deeply. Unhappy woman, thought she, and where will my rude husband begin when he comes home; the blessing of God in this world is gone from me. In a moment she drove this thought from her mind—If the dear goat was thy only blessing from God what is thy Stephen, and what are thy children? She was ashamed that she had been so hasty.—Let all the wealth in the world go, said she, I have my husband and my four children.—The fountain of milk for my nursing is not dried up, and there is water in the well for the rest.—And if Stephen is angry and treats me ill, it is no matter, I shall lose nothing by it. The harvest is near at hand, I can go and reap, and in winter I will spin till late midnight,—so I shall be able to buy another goat, and if I get her, I shall have the kid without doubt.

As she thought thus, she dried up her tears, gained her courage, and as she raised her eyes she saw lying at her feet a leaf which shone as bright and yellow as gold. Quickly she sprang up, ran with it to her neighbor, the Jew's wife, showed her what she had found, with great joy. The Jewess owned it to be pure gold, took the usury and paid her for it two thick dollars down upon the table. Every heart's sorrow was now forgotten. Such a treasure in money the poor woman had never before had in hand. She ran to the baker and bought bread and butter and a shoulder of mutton, that she might prepare supper for Stephen when he came home at night tired and hungry. How the little ones jumped to meet their mother when she came in and brought them such an unusual breakfast. She gave herself up to the joy of feeding hungry children; and then it was her first care to get rid of the goat, which she thought killed by witchcraft, and to hide this family misfortune as long as possible from her husband. But her astonishment exceeded every thing when she by chance looked into the manger and saw a whole heap of golden leaves. If she had read the Greek popular tales she would have quickly supposed that her dear goat had died of an indigestion like that of King Medas; as it was she supposed something of the sort. She sharpened her knife, cut open the dead goat, and found in its stomach a lump of gold as big as a greening apple, and another smaller one in the stomach of the kid.

Now she knew no end to her riches, yet in possessing it, she began to feel a care how she should keep it. She became uneasy, fearful, felt her heart beat, knew not whether she had better put her treasure in the chest, or bury it in the cellar. She began to be afraid of thieves and treasure diggers. She was not willing that Stephen should know all, since she feared that he would be carried away by avarice, take possession of the gold, and leave her and her children to starve. She reflected long how she should manage the matter, but could not come to any conclusion.

The priest of the village was the parson of all good wives who were oppressed—whom he always supported, either out of kindness, or because he considered them the weakest party, he gave them all due honor, and never suffered those husbands who were strikers to misuse his spiritual daughter, but if complaints of such treatment reached his ear he laid a hard penance upon the unruly house tyrant, and always took the side of the wife. Thus he had never spared the staff of penance over the grumbling Stephen, hoping by means of it to drive his ill humor out of the house. The good woman hastened to this comforting soul

curer, repeated to him her adventure with Numbernips, told how he had helped her to a great treasure, and what anxiety she felt about it—she proved the truth of her story by showing the whole treasure which she had brought along with her. The Priest crossed himself at the wonderful occurrence, rejoiced heartily at the fortune of the poor woman, and turned his cap back and forward, to try to find some good counsel, as to how she should keep possession of her wealth, and also to find means to prevent the ill-humored Stephen from getting it into his hands.

After he had considered the matter for some time, he said, listen my daughter, I will give you good counsel. Weigh the gold that I may keep it faithfully for you. I will then write a letter in the Italian language which shall say, that your brother who years ago went into foreign parts was in the Venetian service, and then sailed to India, where he died and left all his wealth by will to you, on condition that the Priest of the parish shall take care of it for you, that it may be for your sole use. I desire neither pay nor thanks from you, only consider that you owe the holy Church a thank offering for the blessing heaven has bestowed upon you, and dedicate a rich mass robe to the vestry. This advice pleased the woman greatly; she promised the Priest the robe, he weighed conscientiously in her presence the gold to the last drachm, placed it in the Church treasury, and the woman took her leave of him with a gay and light heart.

Numbernips was no less the patron of the woman than the parish priest, but it was with this difference—the latter honored the female sex particularly (as he said) because the virgin Mary belonged to it, without having any predilection for any individual maiden, which might have brought reproach on his good name—Numbernips on the other hand, hated the whole human race on account of one girl who had jilted him, though his humor had now taken a mild tone, and induced him to protect and be gracious to one single little woman. As much as the good wife had won his heart by her feelings and her conduct, so much also was he displeased with the rude Stephen, and felt a great longing to revenge the good woman upon him, to play him a trick that would vex and worry him, and thereby make him so humble that the good wife should have her wish and get the upper hand in the house. For this purpose he saddled the morning wind, set out and galloped over mountain and valley, spied like an outsider all the roads and cross paths of Bohemia, and when he saw a wanderer with a load he was behind him and watched him as narrowly as the owner of a basket looks after its contents.—In this way it was impossible for the heavy laden Stephen to escape. At the hour of vespers came along a stout man with a great pack on his back. Under his heavy steady step the burden that he carried was heard to sound. The watcher was rejoiced as he saw him at a distance, that his prey was now secure, and roused himself to do his best. The panting Stephen had nearly gained the top of the mountain, the last swell of it alone remained before him, and then his way home would be all down hill. So he strove to gain the summit, but the mountain was steep and his load heavy. He was forced more than once to rest, and put his knotty staff under the basket to take off its heavy weight while he wiped off the sweat that stood in great drops on his forehead. After stretching his strength to the utmost, he reached the top, and a fine straight path led down the other side. In the middle of the path lay a pine tree, which had been cut down, but the stump was left standing as straight as a candle, and as smooth as the top of a table, and all around it was the green grass. This sight was so inviting to the traveller and so convenient for a resting place, that he immediately deposited his loaded basket on the stump, and stretched himself opposite to it on the soft grass. Here he thought over how much clear gain his wares would bring him this time, and found after a close calculation, that if he did not spend a single penny in the house, but depended on the skillful hands of his wife for food and clothing, he should make enough to buy him an ass in the Schmiedberg Market, and to load him. The thought of how gaily in future he should lead his beast and trudge along by his side, came

to him at the time when his shoulders were smarting under the pain of the load, and was so agreeable to him that he continued the train of it. If I once get an ass said he, a horse will soon follow, and when I get a horse in the stall, I shall soon get a patch of ground to raise his hay upon—from one field I shall come to have two, from two, four, in time a whole acre, and at last a farm, and then shall Elsy have a new gown. He had got thus far with his project, when Numbernips raised a whirl-wind around him and overthrew at once his basket of glass, so that the broken wares fell into a thousand pieces. This was a thunderbolt to Stephen's heart: at the same time he thought he heard at a distance a loud laugh; perhaps he was deceived, and that it was only the echo giving back the sound of the breaking glass. He thought it was malicious triumph, and as the whirl-wind seemed to him supernatural, he easily divided the author of his misfortunes. Oh, complained he, oh Numbernips, what have I done to you that you take away from me my morsel of bread, my bitter sweat and blood—alas I am a man dead while I am yet alive. He then got up in a kind of rage, and uttered all sorts of reproaches to the mountain spirit—villain, said he, come and murder me, since thou hast taken away from me, all that I have in the world. Indeed his life was of no more value to him in that moment than a broken glass. Numbernips however kept out of his sight and hearing. Poor Stephen resolved, if he would not carry his basket home empty, that he must gather up the fragments of glass, that he might exchange them at the glass-house, for at least a pair of glass dishes for the beginning of a new trade. Melancholy as the merchant whose ship and its lading, its men and mice have all been swallowed up in the devouring ocean, he descended the mountain bearing with him many hard thoughts and occupied with many speculations as to how he should make up his loss and continue his business. He at last recollected the goat which his wife had in the stall, yet she loved it like her children, and willingly he knew she would never part with it. He resolved, however, upon this trick to prevent his loss being known at home. He determined not to go back to his house in the daytime, but at midnight to steal in, drive away the goat to the Schmiedberg market, and spend the money for which he sold it in purchasing new wares—but on his return he would reproach and upbraid his wife for having through carelessness suffered the goat to be stolen in his absence.—With this well arranged plot, he threw the broken fragments in a heap near the village in a hedge, and awaited with great anxiety for the hour of midnight in which he might rob himself. When twelve struck, he took his thievish path, climbed over the low gate, opened the inner door and went in with a beating heart to the goat's stall; he was fearful lest his wife should find him engaged in such wicked doings. Contrary to the usual custom, the stall was open, which surprised him, though it gave him pleasure, for he found in the neglect a sort of justification of his designs. But he found the stall all empty and bare; there was nothing there with life and breath, neither goat nor kid. In the first terror he thought some more adroit thief had been before him, for misfortunes seldom come single.—In astonishment he sunk down upon the straw and a heavy sadness came over him that this last attempt to renew his traffic had failed him.

After the busy Elsy had come back from the priest, she had employed herself very carefully in making preparations to receive her husband with a good feast, to which she had invited her friend the priest. He was to take along with him a mag of spiced wine, and at the cheerful feast to announce to Stephen the news of his wife's legacy, and upon what conditions she was to share it. Towards evening she looked anxiously out at the window, to see whether Stephen was coming, went out of the door in her impatience, looked up the street with her black eyes, and wondered what kept him so late; and when night came, her care and anxiety followed her into her bedroom; and she thought not of her supper, and no sleep visited her eyes, until morning, when she fell into a restless slumber. Poor Stephen was not less tired and troubled in the stall. He had

no little strength and spirit left, that he dared not knock at the door. At last he aroused himself, knocked, and said in a sad tone—Dear wife, awake and open the door to your husband. As soon as Elsy heard his voice, she sprang like a dart from her couch, opened the door, and embraced her husband with joy, but he returned her hearty embraces in a cold and hasty manner, set down his basket, and threw himself sullenly on a bench. When the gay wife saw his sad countenance, it went to her heart. What troubles you, husband, said she, surprised: what is the matter? He answered only by sighs and groans. She continued to question him about the cause of his trouble, and his heart was so full he could not long conceal his misfortune from his trusty wife. When she found that Numbernips had been playing him a trick, she understood the good intentions of the Spirit, and could hardly repress her laughter, which would have displeased poor Stephen. He did not take notice of her seeming gaiety, but asked anxiously about the Goat. This amused the good woman still more, for she saw he had been spying about the house. Why are you concerned about my Goat, said she: you have not yet asked about the children? The goat is carried off to pasture, perhaps—leave off vexing yourself about the malice of Numbernips; who knows but he will still make up your loss to you in some other and better way? You may wait long enough for that, said the desperate man.—Oh! said the wife, good often comes unlooked for—take courage, Stephen, to be sure, you have no glass, and I have no goat, but we have four stout children, and four stout arms to feed them and ourselves: these are all our wealth. God have mercy, cried the sorrowful man, if the goats are gone; then throw the four babies into the water, I can never feed them. Well then, I can, said Elsy.

At this moment the good priest came in; he had heard the conversation while he stood at the door. So he took up the word, and preached Stephen a sermon on the text that the love of money is the root of all evil, and after he had with sufficient sharpness explained to him the law, he announced to him the good news of his wife's legacy, took out the Italian letter and interpreted the contents of it, that the present priest of the parish was to be the executor of the will, and that he had already received the money into his safe hands.

Stephen stood stupefied at the news, and could do nothing but bow, as the priest from time to time mentioned the mighty Republic of Venice, and took off his cap as he did so; at last he embraced most tenderly his wife, and from that time Stephen was the most pleasant husband, the kindest father, and most careful provider, for idleness had never been his fault.

The honest priest from time to time changed the gold into money, and bought with it a good farm on which Stephen and Elsy lived the rest of their life. The remainder of the money he put to interest, and guarded the capital of his parishioner as carefully as the treasures of the church, never taking any reward for his services but the Mass Robes which Elsy took care to make so splendid, that an Archbishop would not have been ashamed of them.

This tender and faithful mother lived to a great old age in happiness with her children, and Numbernips' favorite grew to be a brave man, served for a long time in the Emperor's army under Wallenstein in the thirty years' war, and became in time a very celebrated officer.

NOTICE TO MANUFACTURERS.

SIMON FAIRMAN, of the village of Landisburgh, in the county of Rensselaer, and state of New-York, has invented and put in operation a Machine for making Wrought Nails with square points. This machine will make about sixty 6d nails, and about forty 10d nails in a minute, and in the same proportion larger sizes, even to spikes for shingles. The nail is hammered and comes from the machine completely heated to redness, that its capacity for being clenched is good and sure. One horse power is sufficient to drive one machine, and may easily be applied where such power for driving machinery is in operation. Said Fairman will make, vend and warrant machines as above, to any persons who may apply for them, as soon as they may be made; and on the most reasonable terms. He also desires to sell out half of his patent rights for the use of said machines throughout the United States. Any person desiring further information, or to purchase, will please to call at the machine shop of Mr. John Humphrey, in the village of Landisburgh. August 15, 1833.

A39 URM&F

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THE Eulogy by JOHN QUINCY ADAMS, on the Life and Services of this Benefactor of Mankind; on a beautiful paper and type; with a spirited medallion photographic likeness. Is just published and for sale by
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The subscriber will shortly commence a Saturday evening newspaper—containing all the news of the week, foreign and domestic, worthy of recording, entitled

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It will contain much curious matter with illustrative engravings on wood; the price will be three cents per week, and in all cases subscribers will be called upon monthly for the amount of their subscriptions; to those who will pay in advance for 12 months will be given a handsome copper-plate engraving of some distinguished character. An extended prospectus will shortly be issued.

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THE CIVIL ENGINEER & MACHINIST.—PRACTICAL Treatises of Civil Engineering, Engineering Building, Machinery, Mill Work, Engine Work, Iron Founding, &c. &c. Designed for the use of Engineers, Iron Masters, Manufacturers, and Operative Mechanics. By Charles John Blunt and R. Macdonald Stephenson, Civil Engineers, Architects, &c. &c. Consisting of examples worked through their entire detail of fundamental principle, organization, and progress of execution; and being in every case the known great works of British and Foreign Engineering complete and at length. Exemplifying the Practical application of the Laws of Statics, Dynamics, Hydraulics, Hydrostatics, Pneumatics, and General Mechanics; accompanied by full reports, specifications, estimates, and journals of progress; and illustrated by the formulae, calculations, tables, &c. in use by the first authorities. The working plans and general views of these important subjects are laid down in original drawings of great practical accuracy and careful execution, and occupying upwards of five hundred folio and imperial folio plates. In Divisions, containing from ten to fourteen plates in a folio.—Price one guinea.

Of this great work, the three first Divisions are received and for sale by WM. A. COLMAN, No. 122 Broadway, agent in the United States for the Publisher—who solicits subscriptions and the particular attention of Engineers, Iron Masters, Manufacturers and Operative Mechanics, toward the sale in the United States of this excellent and useful Publication. 11 Feb 31.

RAILROAD CASTINGS.

MANY & WARD, Proprietors of the Albany Eagle Air Furnace and Machine Shop, will make to order car wheels, chairs and knees, and every other description of castings required for railroads. R-1y. Feb 1.

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* Mr. Thorburn is also Agent, and will at all times receive subscriptions, for the NEW YORK FARMER and AMERICAN GARDENER'S MAGAZINE; QUARTERLY JOURNAL of Agriculture, Mechanics, and Manufactures; MECHANICS' MAGAZINE and Register of Inventions and Improvements; and the AMERICAN RAILROAD JOURNAL and Advocate of Internal Improvements; published at No. 35 Wall street, N. Y., by D. K. MINOR, Feb 11.

MECHANICS' MAGAZINE, Nos. 1 and 2 of Vol. 5, for JANUARY and FEBRUARY, 1835.—The two first numbers of volume 5 are now published and for sale at 35 Wall street, and at the principal bookstores. These numbers contain a great number and variety of articles, both useful and entertaining; and are printed in a style altogether superior to any of the preceding numbers of the work, and no efforts will be spared to render the work equal to any other of the kind published.

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All Communications addressed to me, at Wheatland Monroe county, will be promptly attended to. September 19, 1834.

TOWNSEND & DURFEE, of Palmyra, Manufacturers of Railroad Rope, having removed their establishment to Hudson, under the name of Durfee, May & Co. offer to supply Rope of any required length (without splice) for inclined planes of Railroads at the shortest notice, and deliver them in any of the principal cities in the United States. As to the quality of Rope, the public are referred to J. B. Jervis, Eng. M. & H. R. R. Co. Albany; or James Archibald, Engineer Hudson and Delaware Canal and Railroad Company, Carbondale, Luzerne county, Pennsylvania.

Hudson, Columbia county, New York, January 29, 1835.

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No. 1. Boiler House, 50 feet by 30 feet, containing all the necessary machinery for making boilers for Locomotive and other steam Engines.

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JAMES F. STABLE, Sup't of Construction
of Baltimore and Ohio Railroad.
Philadelphia, February, 1833.

Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors.

E. H. GILL, Civil Engineer.

Germantown, February, 1833.
For a year past I have used Instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these Instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY R. CAMPBELL, Eng. Philad.
Germantown, and Norristown, Railroad